Ethical versus self-interested rationality: an investigation of models of human knowledge and value in northern Thailand

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Ethical versus self-interested rationality: An investigation of models of human knowledge and value in northern Thailand.

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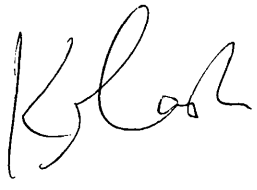

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Table of Contents

List of Maps and Tables

Maps

Tables

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Abstract

This research is concerned with the moral philosophical and epistemological positions underlying economics and the examination of its claims. Specifically, two questions are asked with the intention of investigating the issue of the commensurability of what have been referred to as 'citizen' and 'consumer' values. Firstly, do environmental citizen values possess objective validity? Secondly, are moral norms motivated by individual well-being?

Part II of the thesis considers the objective validity of environmental norms. Arguments concerning the objectivity of scientific knowledge within the philosophy of science literature are reviewed, and the existence of necessity in knowledge posited as a requirement for objective knowledge. One possible source of necessity is identified in the form of the adoption of Piaget's 'genetic epistemology' in explaining environmental preferences. However, attempts to empirically identify such necessity prove inconclusive.

Concerns within the literature over the objectivity of the naturalistic project in the social sciences threaten to undermine attempts to identify necessity in knowledge. It is suggested that these problems can be overcome through the adoption of a scientific realist perspective. This is in turn paralleled with the 'direct perception' approach to explaining conceptions of nature. However, attempts to identify cross-cultural commonalities in the conceptions of nature in support of the direct perception approach prove inconclusive.

Part III then explores the question of whether moral norms are motivated by individual well-being. Following a review of attempts to incorporate moral norms within economists' conception of 'rationality', the question is redefined as whether moral norms share the teleological structure of economic preferences. The results of a Contingent Valuation survey suggest that moral norms and economic preferences are commensurable, and that morality possesses a teleological structure. However, it is suggested that this conclusion requires that assumptions be made regarding respondents'

beliefs, a limitation experienced generally when investigating causal laws in the social sciences.

Thus the answers to both the questions posed are inconclusive. Instead the outcome of the research points to the epistemological problems in establishing causal relationships within the social sciences. It is suggested not only that further research is required, but also that greater attention needs to be given to epistemological issues in designing such research.

PART I

Moral norms, the market, and environmental policy.

This thesis started life as an investigation into the sustainability of indigenous forest use norms in northern Thailand. Having identified the expansion of the market into the previously relatively isolated upland areas of Thailand as an important factor in the effectiveness of traditional norms, attention was turned to the nature of the sanction system underlying communal resource regulation, considered important in determining the impact of market forces on traditional resource use practices. A review of the collective action literature concerned with this question identified two lines of argument divided according to utilitarian and deontological conceptions of morality.

An interest in non-market valuation techniques revealed a debate between mainstream environmental economists and their detractors concerning the incorporation of moral values into market prices that also divided along the lines of utilitarian and deontological conceptions of morality. Moreover, this literature defined the debate according to the commensurability of what are referred to as 'citizen values' and 'consumer values', and outlined the assumptions required for value forms to be considered commensurable, namely, that consumption decisions are based primarily on individual well-being, and that individuals are the best judges of their own well-being.

Combining these two debates, Part I of the thesis establishes the importance of the commensurability of citizen and consumer values in determining the appropriate role of both traditional communal resource use norms and economic valuation in environmental policy. It then proposes the determination of the commensurability of citizen and consumer values through an investigation of the assumptions underlying claims of commensurability as a research question for the remainder of the thesis. In this way the research hopes to contribute to resolving the utilitarian-deontological moral philosophical debate and thus the debates concerning the appropriate form of economic valuations of the environment and the impact of market forces on traditional resource use norms.

Chapter 1 concentrates on the problem of deforestation and the related policy debate in Thailand. Having identified the erosion of traditional resource use norms by the expanding market as a problem of concern in establishing a policy of community management of forest resources, it is suggested that the nature of the sanctioning systems underlying community norms is important in regulating the impact of the market. The issues underlying the debate over the nature of the sanctioning system required for communal action parallel those underlying debate over the efficacy of the economic valuation of environmental resources. The latter is the subject matter of chapter 2. Specifically, it is suggested that the commensurability of 'citizen' and 'consumer' values not only underlies the appropriateness of incorporating social norms into economic valuation, but will also determine the impact of market forces on traditional social norms. Moreover, attempts by economists to defend the commensurability of citizen and consumer values can be used to identify research questions, the answer to which will contribute to both the community forestry and economic valuation debates.

1. Solutions to Thai deforestation: The Community Forest Bill and the extension of the market.

1.1 Deforestation and traditional communal forest use in Thailand.

Deforestation is currently an issue of major international concern. Depending on the definition of deforestation used, estimates measured the exact scale of the problem at between 14 and 17 million hectares per annum (1.8 – 2.2% of total forest areas) by the end of the 1980s, an increase on the 0.6% per annum at the end of the 1970s (Pearce, 1990). The situation in Thailand is no different. In 1938 forest cover was estimated at 72% (England, 1996). As late as 1961 forest cover was estimated at 53% of the national area, comfortably within the target of maintaining 40% of the area of the country forested set by the government in 1960 (Hirsch, 1987). However, by 1986 estimates ranged from a high of 29% of the country forested to a low of 15%, depending on the definition of forest areas (Hirsch, 1987). Significantly, only 30% of the forest in the hills above 800m – the main source of watershed for the entire country – remain (Anderson, 1993). The rate of deforestation in Thailand is shown in table 1.1.

Table 1.1 Comparison of existing forest and changes in Thailand, 1961 – 1985 (England, 1996)

YEAR	AREA OF FORESTED LAND (ha)	% OF LAND UNDER FOREST COVER
1961	27,362,850	53.33
1973	22,170,700	43.21
1976	19,842,000	38.67
1978	17,522,400	34.15
1982	15,600,000	30.52
1985	14,905,300	29.05

Thus, by any estimate of forest area, deforestation in Thailand can be seen to have been proceeding at an alarming rate over the last 50 years, bringing with it various adverse effects. First, soil erosion affects over 170,000 square km of Thailand. Soil loss in areas of deforestation is estimated at between 50 and 350 times that for undisturbed forest (Hurst, 1990). Soil loss in turn impacts agricultural yields. Between 1960 and 1982 yields fell by 15% in Thailand despite the use of increasing quantities of fertilisers (Hurst, 1990). Erosion also reduces the effective life span of waterways, irrigation channels, and dams. Second, deforestation is also thought to result in the break down of the water cycle. In 1984 serious flooding occurred in 60 of Thailand's 72 provinces, destroying an estimated 640,000 ha of crops (Hurst, 1990). Changes in the water cycle in turn impacts weather patterns. Although the exact impact is unknown, it is thought that deforestation is causing declines in rainfall through the fall in evapo-transpiration from trees (Hurst, 1990). Thirdly, deforestation is thought to have resulted in the loss of numerous species in an area of unique levels of biodiversity. Although the exact loss of species is unknown, declines in the numbers of high profile species help to indicate the scale of the problem, with the tiger, elephant, crocodile, mouse, deer, kouprey and Sumatran rhino all considered to be under threat.

Traditionally, two explanations for the rate of deforestation have been put forward. Firstly, excessive logging and the subsequent encroachment it encourages, as access to forested areas is opened up. Identifying this as a primary cause of deforestation, and following the connection of deforestation in upland areas to flash floods in November 1988 in southern Thailand in which 350 people died, the Thai Government responded by suspending logging activities in the southern region and subsequently banning logging throughout Thailand in 1989 (England, 1996). While official figures suggest that, after the logging ban, the rate of forest encroachment dropped by 83.59% (England, 1996), the logging ban does not represent a comprehensive solution to the problems of deforestation. It is suggested that illegal logging persists and has simply taken on more surreptitious forms, while state development projects have provided opportunities for occasional logging licences to be granted (England, 1996).

The other cause of deforestation that is pointed to is swidden agriculture, in particular the agricultural techniques of the hill tribe population. An estimated 2000 communities of hill tribe people, including groups of Lua, Karen, Lisu, Hmong, Akha, and Lahu,

practice swidden agriculture over an area of 5,000 km² of the forest areas of northern Thailand (Anderson, 1993). However, to label swidden agriculture as detrimental to the forest environment is misleading, as it ignores the variety of forms that swidden agriculture takes in the region. On the one hand, the Hmong, Yao, Akha, and Lahu practice a version of swidden agriculture known as shifting cultivation: the felling and burning of forest areas, and growing crops in the cleared area as long as fertility is maintained – approximately 4 to 5 years – before moving on to clear another area. On the other hand, the Karen, and Lua practice a form of swidden agriculture known as cyclical swiddening. It is the environmental degradation produced by the former of these methods that earns swidden agriculture its poor reputation. However, the cyclical swidden of the Karen is generally considered environmentally benign[1].

Support for the environmentally benign nature of cyclical swiddening is reconciled with the notion that tribal cultivation techniques have detrimental effects on the forest environment through what has been referred to as the 'Karen consensus'. This argues that traditional Karen communal forest use regulation provides a sustainable way to manage forest resources, but that external social forces undermine the efficacy of these institutions (Chalardchai, 1989). Firstly, migration into Karen areas places traditional use systems under pressure, reducing the land available to operate rotation farming, and causing the overuse of the forest (Chalardchai, 1989; Anderson, 1993). Increased population levels, and improved access to forested areas have seen migrants from lowland areas clearing forests for agricultural land. Moreover, other hill tribes from higher elevations, whose land use techniques are not so benign, and who have increasingly exhausted their land, are migrating to the lower elevations inhabited by the Karen.

The encroachment by migrants into hill tribe land is exacerbated by government road building and cash crop promotion policies. Concerns over national security in the era of Prime Minister Field Marshall Sarit Thanarat (1958 – 63) resulted in a programme of road building into areas considered vulnerable to the influence and armed insurgence of the Communist Party of Thailand (Lohmann, 1995). Construction of roads in Thailand, under the authority of the Office of Accelerated Rural Development, has absorbed the

[1] See s. 6.9 for a discussion of the benign nature of Karen forest use norms and the cultural system

largest single portion of the development budget in Thailand since 1950 (Hirsch, 1987). With access to remote areas of Thailand improved by the building of new roads, migrants were then drawn to these areas by the promise of the cash crop boom, and the Government's promotion of agricultural exports under the guidance of the World Bank (Bello *et al.* 1998; Charit, 1989), as well as problems of tenancy and high rents in their home regions. The result was an estimated 3 million lowlanders migrating to the forests of the north. Migration and forest clearance thus served the dual purpose of improving the balance of trade and removing potential cover for the Communist Party (Lohmann, 1995).

The effect of the encroachment by migrants on traditional lands is exacerbated by the hill tribes' lack of citizenship and thus land rights. The fact that the hill tribe populations don't enjoy full Thai citizenship status means that their land entitlements are limited. Moreover, this is a situation aggravated by the fact that the traditional Karen tenure system is a mixture of individual, household, and community based rights, while the Thai legal system recognises only private land rights (Vandergeest, 1996). Thus, the Karen are faced with the choice of either accepting the Thai legal categorisation and applying for rights to their traditional land, in which case the vital communal aspects of their resource use system is undermined, or maintaining their communal system and risking encroachment into their land by migrants. In each case, the efficacy of traditional use systems is damaged.

A second factor that undermines the ability of the Karen to implement their traditional use system, one related to the property right issue raised above, is the forest reservation policy. While forestry policy in the early part of the century followed the philosophy and practice of the British in India and Burma, adopting a "scientific" approach to forestry and the creation of logging concessions (Chalardchai, 1989; Vandergeest, 1996), since the 1960s the Thai Government, backed by a 1939 law empowering it to declare protected forest reserves, has specified targets for the proportion of the country that should remain under forest cover. 1960 saw the codifying of the Conservation and Protection Act, followed closely by the National Park Act of 1961. In 1964 the National Reserve Forest Act introduced a rather ambitious target of maintaining 50% of

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underlying them.

Thailand's total area under forest. This target has since been lowered on a number of occasions. The Fourth National Plan of 1977-81 set the target at 37%, though based on the above estimates even this seems too ambitious.

The establishment of protected areas progressed only slowly in the 1960s, with only 1% of national territory protected by 1967 (Vandergeest, 1996). Increased government concern with conservation in the 1970s resulted in the acceleration of the rate of demarcation of protected areas, and 9.4% of national territory was designated either national park or wildlife sanctuary by 1986 (Vandergeest, 1996). The role of national parks and wildlife sanctuaries received a boost in 1989 when the government banned all logging activities in Thailand, and the mandate of the Royal Forestry Department shifted from one of organising timber extraction to one of forest conservation. The policy of protecting forests has seen the Thai Government create 52 parks, 28 wildlife sanctuaries, and 41 non-hunting areas, many of which are in the north (Anderson, 1993), and 28% of the total land area of Thailand being declared protected by 1992 (Bello *et al.* 1998).

The impact of the creation of protected areas has been to undermine Karen resource use systems. For those villagers that find themselves within protected areas the result is conflicting land rights systems. The co-existence of Royal Forestry Department regulations concerning forest use and traditional land rights produces an insecurity of tenure and an effective open access regime. The inability of communities to develop a sense of attachment to land creates a mentality of exploiting the land as quickly as possible before rights to that land are removed altogether. In Thailand, the northern region provides the majority of recorded cases of conflict over forest rights related issues. Lack of respect for state property rights by tribal people has resulted in little adherence to forestry legislation. This is well illustrated by the highly organised Karen army calling for self-rule. Attempts by the state to reduce opium production, a vital source of funding for the army, meant that the Karen had to resort to illegal logging practices for income. In 1985 the authorities imprisoned over 5,000 log poachers in northern Thailand (Hurst, 1990). Resistance by locals to the suppression of their traditional rights through the creation of protected areas has manifest itself in the formation of the Northern Farmers Network, which attempts to influence policy makers

with demonstrations and marches, including the recently well publicised march in Chiang Mai in May 1999 that was broken up by the authorities.

Thirdly, the extension and intensification of the role of the market in Thai society is thought to influence the effectiveness of traditional resources use systems. Beginning with the Anglo-Siamese Treaty of 1826, and the Bowring Treaty of 1855, and continuing through US influence during the fight against communism in the Cold War and the adoption of market based development policy under the guidance of the World Bank and the International Monetary Fund, Thailand has gradually been opened to the forces of global capitalism and a dependence upon external demand (Chalardchai, 1989; Hirsch, 1990; Lohmann, 1995). Until recently the relative abundance of land within Thailand insulated rural communities from the influence of capitalism. However, following a period of land use extensification the last fifteen years has seen an increased problem of land scarcity, and with it an increase in the impact of capitalism on rural communities. The result has been the increased differentiation of, and conflict within communities, and the decline of the traditional community (Lohmann, 1995).

A final pressure on the working of traditional resource use systems is the access to alternative worldviews that improved communication and transportation permit. For instance, the schooling of hill tribe children within the Thai education system, while providing the tools for tribal people to better themselves within Thai society, represents a severe challenge to the perpetuation of tribal cultures (Anderson, 1993). Moreover, the missionary activity of various religions has resulted in tribal people abandoning their traditional beliefs with the resultant changes in social structure and ethnic identity (Chumpol, 1997). Conversion to Christianity in particular is thought to have brought major changes in Karen culture (Chumpol, 1997)[2]. The more subtle effect of alternative worldviews propagated, for instance, through the media are more difficult to identify[3].

[2] This effect is mediated by the fact that only 17% of the Karen population in Thailand have converted to Christianity, while 55% are thought to have adopted a form of Buddhism that allows the maintenance of traditional animistic beliefs (Chumpol, 1997).

[3] See s. 9.3 for a further discussion of the influence of the media and education system on traditional resource use norms.

1.2 The Karen Consensus, Participation, and the Community Forest Bill.

1.2.1 The Karen Consensus.

The result of the above forces is the gradual assimilation of the hill tribes into Thai society and the global market economy, the loss of indigenous knowledge, institutions, and values, and the undermining of environmentally benign traditional resource use systems (Kempe, 1997a, 1997b; McCaskill, 1997). It is the claim of what is referred to as the 'Karen Consensus' that these externally imposed forces of modernisation have subverted traditional resource management regimes resulting in natural resource depletion. Moreover, it is suggested that participation of Karen communities in forest resource management, once protected from such external forces, in particular once traditional communal rights are legally recognised, presents the possibility of sustainable forest use and a solution to the problem of deforestation.

The history of the debate concerning the concept of development and the role participation should play in development in Thailand has tended to follow that in the more general development debate. In the immediate post-war period development was conceived as bringing productivity and consumption levels into line with those of developed countries (Hirsch, 1990). Consequently, it was to the history of the developed world that those concerned with development turned in search of models of this process: state formation, national integration, growth, capitalist transformation, urbanisation, industrialisation etc. Following this trend, and under the guidance of the World Bank (Chalardchai, 1989) Thailand adopted a development ideology based on the promotion of individual accumulation of wealth, monetized production relations, and the nationalist ideology of nation-religion-monarchy, and initiated national economic planning in the early 1960s (Hirsch, 1990). From this perspective, participation was limited to people's roles as consumers and producers, and forest areas were opened up to clearing for cash crop production.

It was soon realised that unequal distributions of income or the failure to recognise the benefits of accumulation via the capitalist economy were inhibiting development under such an approach (Panayotou, 1983; Hirsch, 1990). Thus, there emerged in Thailand a development ethos concerned with ensuring the trickle-down of the fruits of growth to

the rural population (Hirsch, 1990). The World Bank produced a report entitled "Thailand: Towards a strategy of full participation", arguing that the problem was not the promotion of capitalist penetration into the economy but that such penetration had not gone far enough. The answer was 'modernisation', with non-capitalist elements ironed out through the construction of roads, the extension of credit, and the improvement of marketing. In forestry, the commercial forestry approach, in particular the National Forest Policy partly adopted in 1987, was indicative of this attitude to participation. The aim of the National Forest Policy was to expand forests to 40% of the total land area. One third of this would be achieved through protected areas, the remaining two thirds through the establishment of commercial forest. The success of such plantation forest was limited by illegal logging and degradation by farmers. Replanting thus covered less than 8% of the forest lost annually (Hurst, 1990).

It is suggested that the failure of reforestation programmes was the result of the lack of control given to communities, therefore not overcoming the causes of deforestation (s. 1.1). The rights that were given to farmers, including the Forest Village Program of 1956 and the National Forest Land Allotment Programme (STK) launched in 1982, tended to emphasise private tenure and suffered from problems of tenure insecurity (Lohmann, 1995). The result was the concentration of land rights in the hands of the well-connected few, and little to talk about in terms of environmental gains[4] (Hurst, 1990). The failure of commercial reforestation programmes to improve participation in development was illustrated by the displacement of people, which eventually led to protests by thousands of dissatisfied peasants in Nakhon Ratchasima City and Pak Chong district in June 1993, forcing the government to suspend commercial reforestation.

In an attempt to overcome the failure of previous policies, and in response to changes in popular thinking within development circles regarding participation issues, a new approach to participation was manifest in the forestry sector through a number of initiatives, such as the Thai Forest Sector Master Plan (TFSMP), and the Forest Conservation and Development Project. The TFSMP divided Thailand's forests into

[4] Plantations were dominated by eucalyptus, as it is very fast growing. However, eucalyptus consumes large quantities of water, provides poor shade and is thus not suitable for inter-planting with crops, and produces too many toxins in its leaf litter to allow other plants to grow beneath them (Lohmann, 1995).

'Conservation Forest' and 'Multipurpose Forest', which defined the possible use of forest areas and included a community forestry element. However, while the plan adopted the language of community forestry, Bello et al (1998) argued that the basis of the plan was a strong argument for commercial forestry. Thus, the plan effectively paved the way for the reintroduction of the commercial reforestation practices that had been banned only a few years before. In fact the ban on commercial reforestation was lifted in 1993.

The notion behind the Forest Conservation and Development Project, co-funded by the World Bank administered Global Environmental Facility, was to create protected conservation areas, with minimal human presence, surrounded by a 'Conservation Buffer Zone' five kilometres deep where communities would partake in ecologically sustainable economic activities. The arguments against the buffer zone policy suggest that it is simply an adaptation, or an add-on to the national parks philosophy. That is, the solution to conservation is seen as keeping people away from the forest, while perceiving the encroachment problem as simply one of poverty (Bello *et al.* 1998). Instead, it is argued the problem is one of community control over resources and villagers' claims to land within protected areas. The solution is thus viewing the relationship between people and the forest as a dynamic process based on co-evolutionary development, and recognising the compatibility of traditional activities and conservation, as reflected in the Karen Consensus.

The perceived compatibility of traditional activities and conservation is manifest in Thai forestry policy in attempts to implement the Community Forestry Bill (CFB), which seeks to give more control over forests to communities, allowing communities to manage resources in their forest, replacing the Royal Forestry Department officials' mandate to do so, and allowing the creation of community forests within conservation areas. Disagreement between NGOs over whether communities could co-exist with and be trusted to conserve the forest delayed the introduction of the CFB. However, the Royal Forestry Department eventually approved a draft bill, and in September 1997 the Committee of Public Hearings presented the CFB to the Cabinet. However, after the public hearing had approved the bill, changes were made to the bill without any input from the NGOs that had helped write it. For instance, one such change concerns the process of creating community forests within conservation areas. With the changes,

communities would have to prove that they can manage forests for five years before community forest status will be conferred. Even then, community forests would be subjected to inspections by four different government organisations.

The NGOs involved in the development of the bill challenged these changes, and in July 2001 six competing drafts of the CFB were submitted to the House of Representatives: five submitted by the government, the sixth being proposed by citizens following the collection of 50,000 signatures by NGOs, academics, and community representatives. The main difference between the proposed draft bills is that, while the government's versions give authority for granting and monitoring of community forest rights to the forest chief and agriculture minister, the people's version suggests authority should be locally administered. In November 2001, the House approved the notion of allowing Community Forest in protected areas providing a forest management plan is submitted and the community can show that it has successfully managed the forest for the last 5 years (Bangkok Post, November 1, 2001). Later the same month, the Senate accepted the bills for deliberation despite their concerns that community management would harm forests in protected areas (Bangkok Post, November 2, 2001).

1.2.2 The market and traditional use rights

To some extent the motivating forces underlying the difference between the two forms of draft bill are political. In support of this position, Vandergeest (1996) argues that the nature of bureaucratic politics in Bangkok is to blame for opposition to permitting livelihood activities inside protected forest areas. The motivation of government departments to maintain budgets and the associated status of its officials is thought to lie behind the Royal Forest Department's (RFD) attempt to maintain exclusive control over protected areas. The RFD's legitimacy, and therefore budget, was initially based on its control over the extraction and export of timber from Thailand's forests. The creation of protected areas, especially following the banning of logging in 1989, meant that the RFD could no longer legitimise its control over territory by appealing to the need to promote economic development through scientific forestry. The problems this change in emphasis on forest issues created for the RFD are highlighted by its declining budget during the 1980s (Vandergeest, 1996). However, through redefining its role as a

conservationist organisation required to regulate protected areas, the RFD relegitimised itself, and once again its budget began to rise (Vandergeest, 1996).

Beyond political issues, underlying the debate in the Senate as to where authority for regulating community forests should lie sits the contentious and very real issue of whether communities are able to interact sustainably with the forest. Even accepting the validity of claims that the traditional forest use practices of the Karen are environmentally benign, there is still the issue of the various external forces that have undermined the efficacy of such institutions (s. 1.1). Arguments that community regulation provides a strategy for sustainability would seem to be based upon the notion that traditional systems can be protected from the adverse effects of modern social dynamics. However, one has to ask whether this is possible.

Considering the issues discussed above, it might be argued that establishing a legal system that recognises and enforces the communal property rights of tribal groups would go some way to overcoming the problems of migration and national park policy. Moreover, though perhaps more difficult, it is possible to imagine measures that would help to mitigate the impact on traditional culture of alternative world views. For instance, the education system could be reformed to pay special attention to the needs of minority cultures. However, perhaps the largest obstacle to protecting traditional cultural systems is the apparent inexorable extension of the market and its undermining of communal institutions.

The likely impact of the extension of market forces on tradition resource use norms depends on our perception of the source of and factors maintaining communal practices. This is an issue that has received significant attention within the literature on the success of collective action mechanisms. Within this literature, there exists a consensus on a broad range of conditions thought important for the success of co-operative institutions: small user groups, living close to resources, free to establish their own management regimes, a high dependence on the resource being managed, clearly defined common property rights, simple and fair rules, a well established punishment mechanism, low costs of monitoring, public resolution of crucial issues, and an available conflict resolution mechanism (Baland and Platteau, 1996). However, beyond this consensus

there exist a number of issues upon which commentators disagree. One such issue is the form of sanction system required for collective action[5].

Positions within the debate over the nature of the appropriate sanctioning mechanism within communal arrangements can be organised according to the moral economy-political economy debate of James Scott and Samuel Popkin. While Scott (1976) suggested that village communal organisations are regulated by reciprocity norms that keep villagers in moral debt and place the subsistence of community members before individual maximisation, Popkin (1979) rejected the moral economy, arguing that individual maximisation strategies precede village level strategies. These positions are represented within the collective action literature by the work of Wade and Olson. On the one hand, Olson (1971) suggested that collective action is made possible through the implementation of punishments and inducements that impact the individual's benefit function. On the other hand, from his studies of collective action in India, Wade (1987) argues that where successful collective action regimes were found the main explanatory variable was the existence of a net collective benefit, which in turn was reflected in the existence of "morality, power, loyalty, and other forms of social interaction", while elective punishments and other forms of inducement were found to be lacking. The difference between these two positions is that one emphasises the role of social values, codes of honour and responsibilities, while the other emphasises values based upon individual preferences.

It is proposed that whether sanction systems are based upon moral commitment or individual maximisation will determine the impact of the market on the efficacy of social norms in the regulation of forest use, and thus the potential role of community regulation of such resources in a sustainable management strategy. That is, if communal resource use is regulated by a mechanism that calls on the individual maximisation of members, then the extension of the market, through changes in the payoffs facing members, has the potential to undermine community regulation regardless of social structure. On the other hand, the regulation of community activities through moral

[5] Others include the role of economic incentives for participation in co-operative enterprises, the potential for larger groups to co-operate successfully, and the role of past experience of successful collective action (Baland and Platteau, 1996).

norms provides the possibility that protecting traditional social institutions can ensure the maintenance of traditional use norms even in the face of market expansion.

Moreover, if communal resource use is based upon a system of regulation that works through the manipulation of the individual maximisation of community members, then there is reason to think that appropriate market valuation, also influencing individual maximisation might also produce similar forest use regulation. On the other hand, if resource regulation requires communal norms, the chances of the market simulating such management regimes is limited. It is exactly this issue that underlies debate over the efficacy of economic valuation of environmental resources. Furthermore, this debate provides further insight into the relationship between market values and social norms, and can be used to elaborate avenues for further research that will enable us to contribute to determining the impact of market forces on traditional social norms. Thus, before elaborating on the relationship between sanctioning systems and the durability of traditional social norms, the next chapter considers perspectives on the economic valuation of environmental resources.

2. Economic valuation of environmental resources and the commensurability of citizen and consumer values.

2.1 Introduction

This chapter briefly outlines what might be economists' solution to the problem of deforestation: overcoming market failure and bringing total economic values to the decision-making process (s. 2.2). The efficacy of this approach is then discussed by distinguishing between the utilitarian and deontological moral frameworks and, in particular, what are referred to as 'citizen' and 'consumer' values (s. 2.3). It is suggested that, for everything economists claim to hold true, citizen and consumer values must be considered commensurable. The notion of the commensurability of citizen and consumer values is then extended to the problem of the impact of market forces on traditional social norms presented in chapter 1, and it is explained how the resolution of the commensurability debate can contribute to this problem (s. 2.4).

Having located the commensurability debate in the history of economic discourse with a review of the socialist calculation debate (s. 2.5), attempts by economists to defend the commensurability of citizen and consumer values and thus the neo-classical paradigm against the critique that it fails to appropriately consider ethical values are discussed (s. 2.6). In particular, two such defences are focused upon: that agents are primarily concerned with their own well-being, and that individuals are the best judges of their own well-being. It is proposed that these two issues be investigated in the remainder of the thesis in order to contribute to the commensurability debate and thus both the market impact and economic valuation debates. Section 2.7 then provides an extensive summary of how this thesis goes about undertaking this investigation.

2.2 Economic valuation and the sustainable use of natural resources.

2.2.1 Estimating total economic value.

The issue of deforestation can be reframed in the language of economics providing an alternative solution. Economists point to a number of reasons why individuals might

rationally deplete valuable tropical forest resources. For instance, Swanson (1995) shows that it is in the interests of investors to convert a resource with a growth rate less than the discount rate into an alternative form of capital. That is, the discount rate determines the rate of return required from natural resources and therefore the level of conversion to higher return assets. It can be shown that extraction of assets will take place to the point where the growth rate of an asset equals the rate of discount (Swanson, 1995). However, discount rates may also have output effects that work in the opposite direction to such substitution effects.

Lower discount rates will result in higher values being applied to the future, and therefore higher levels of investment today. It is argued that the application of shadow prices to reflect the true economic value of tropical forests will have a two-fold effect (Swanson, 1995). Firstly, the discount rate applied will be lowered. Secondly, as the emphasis is moved from higher growth to higher value assets in the calculation of returns, the possibility that tropical forests are chosen in asset portfolios will increase. From this perspective, deforestation becomes a change in land use due to the replacement of low return with higher return uses in the process of economic decision making. The determination of the optimal use of forest land therefore requires an analytical framework for the social evaluation of tropical forests in order that its true return can be considered in decision making.

Various attempts have been made to estimate the total economic value (TEV) of tropical forests through the use of cost-benefit analysis (CBA). Pearce (1990) demonstrates that there exists an anti-conservationist bias within economic incentives. That is, the TEV of the conservation of tropical forests actually exceeds the development values derived from destroying forests. It is suggested that a major difficulty contributing to the extent of deforestation is that many components of the TEV of forests have no market, especially underdeveloped non-timber products, indirect uses, and option and existence values (Pearce, 1990). Thus, the choice of land use is biased in favour of marketable uses such as ranching, timber exploitation, and agriculture, and therefore excessive conversion of forest.

Swanson (1995) has identified further biases towards the conversion of tropical forests resulting from network externalities due to prior development in temperate parts of the

world. In particular, Swanson (1995) argues that the perceived values of tropical forests are predetermined by the conversion decisions of initial development paths. The societies taking such decisions – in this case the countries of the West – select a number of locally available assets to develop. Investment in these assets produced network externalities that resulted in subsequent development efforts tending to take the form of 'catch-up' and the transposing of these selections to their own territories; a bias that tends to favour investment in the same set of assets across the globe. This is particularly important from the point of view of the conversion of tropical forests, as these initial development decisions were taken in the context of temperate ecosystems. However, tropical and temperate ecosystems differ in fundamental enough ways as to reduce the effectiveness of management techniques developed in one when applied to the other.

The bias towards conversion of tropical forests is exacerbated by attempts by government to promote the development processes that are perceived as having been so successful elsewhere, resulting in programmes of agricultural subsidies, and land grants that encourage conversion (Swanson, 1995). A specific consequence of this is the allocation of forestlands to solve the problems of population pressure and poverty elsewhere in the economy. Moreover, governments tend to perceive timber harvests as the only benefit of forest resources (Hartwick and Olewiler, 1998). This is reflected in, for instance, the depletion of forest resources in order to raise revenue and reduce levels of indebtedness (Reid, 1995)[6]. Such policies contribute to the encroachment into traditional, indigenous lands and the subsequent erosion of traditional forms of forest use regulation.

Hence, it is argued that non-market valuation techniques can ensure that the TEV of forest resources are accounted for in decision-making, reducing deforestation rates. That is, there are economic arguments in favour of the conservation of tropical forests. Indeed, Barbier (1991) estimates that the maximum potential TEV of tropical forest resources would be obtainable through a sustainable management regime. Pearce (1990) even argues that, while efficiency would require the 'true' value of resources be

[6] Such incentives are thought to exist within Thai forestry policy. While commercial logging was officially outlawed in 1989, it is suggested that state development projects have provided opportunities for occasional logging licences to be granted (England, 1996). Moreover, the Thai Forest Master Plan, while presented under the guise of community forest policy, paved the way for the reintroduction of commercial forestry, the ban on which was lifted in 1993 (s. 1.2.1).

considered, there is evidence to indicate that consideration of only marketable direct use values alone would be sufficient to favour tropical forest conservation, the observed clearing of forest lands being the result of subsidies offered for such activities, and the insecure tenure of many users. Thus, economic arguments are alone sufficient to justify a dramatic reduction in deforestation rates around the world.

2.2.2 Consumer values: economic valuation of the environment.

The valuation of the environment is an issue that invokes particularly deep felt, fundamental divisions between the different academic disciplines. On one side of the social science debate reside the economists who, conceiving of environmental 'use-values' as articles capable of satisfying given, subjective preferences, argue for the efficacy of the application of the economic framework and the market mechanism to the valuation of natural resources (Perman *et al.* 1996). From this perspective, environmental problems are classified as externalities: the exclusion of environmental preferences from expression within the market due to the nature of the environmental resources in question (Perman *et al.* 1996; Keat, 1997). Hence the solution to such problems consists in removing such externalities through, for instance, the use of cost-benefit analysis (CBA) and the attachment of 'shadow' or 'surrogate market' prices to environmental goods and services. Once this exclusion is overcome, through the institution of property rights or use of economic valuation techniques, environmental resources are thought to be allocated optimally through the interaction of supply and demand within the market.

This modern conception of economic value within the market dates back to Alfred Marshall's reconciliation of the two theories of values which Adam Smith had initially presented economics but had difficulty reconciling: a labour cost theory of value, stating that the value of a commodity was determined by the amount of labour it took to produce it; and a labour command theory of value, stating that the value of a commodity was equivalent to the amount of labour it could be exchanged for in the market. Smith's inability to reconcile these two value concepts established what would become the split between the "production cost theories of value" and the "subjective preference theory of value".

Current economic theory is the result of Marshall's reconciliation of these two theories into one coherent theory with the construction of his "Marshallian Scissors". According to this conventional theory, the value of a good is given by the equilibrium market price found where the supply curve, representing the production cost theory of value, intersects the demand curve, representing the subjective preference theory of value. However, the notion that the incorporation of both "production cost" and "subjective value" theories of value in some way overcame the subjective nature of economic valuation is misconceived. The valuation of production costs in determination of the supply curve, while taking account of the physical aspects of production, is itself ultimately determined by choices relating to work, saving, risk, and so on, and so also represents the expression of subjective preferences[7].

The extension of this subjective preference based valuation process to environmental resources becomes problematic when it is asked: what costs and benefits should be regarded as relevant within the valuation process? Initially, a relatively narrow view of values relevant to economic valuation was taken, restricted to goods which were already subject to market pricing. However, in reaction to criticisms that this approach failed to take into account significant aspects of the value people attributed to the environment, the concept of externalities was broadened to incorporate 'intangible' values involved in the aesthetic appreciation of nature, and ethical objections to environmental damage (Keat, 1997). In order for such a move to be justified – that is, in order for consistency with the utilitarian moral foundations of neo-classical analysis to be maintained – all evaluations and moral commitments have to be considered commensurable, or reducible to subjective utility. As Hodgson (1997: 52) puts it:

> In sum then, moral values and norms appear in the neo-classical analysis, but either they are rendered commensurate with everything else via the utilitarian calculus of satisfaction seeking individuals, or they are simply disregarded. [...] The neo-classical economist is thus like the cynic in Oscar Wilde's play *Lady Windermere's Fan* – a person who 'knows the price of everything and the value of nothing'.

[7] This is a perspective fully developed by the Austrian School. A brief review of subjectivism in the work

2.3 Citizen values: the non-commensurability of environmental values.

Arguments against the economic valuation of natural resources can be summarised by an expansion of "possibly the most venerable – and surely the most familiar – distinction in political theory" (Sagoff, 1998: 214): that between utilitarian and deontological (or Kantian) conceptions of rational choice. The utilitarian approach states that decisions should be made "by evaluating their consequences in terms of prior preferences" (March, 1994). Adopting the deontological framework, decision makers "pursue a logic of appropriateness, fulfilling identities or roles by recognising situations and following rules that match appropriate behaviour to the situations they encounter" (March, 1994).

Neo-classical economics takes as its foundation a utilitarian moral philosophy, the fundamentals of which are thus extended to arguments within environmental economics. Utilitarianism is a consequentialist moral philosophy, judging the moral rightness of an action by the utility that is generated by it, or its contribution to the greatest good of the greatest number. Classical utilitarianism, as developed by Jeremy Bentham and John Stuart Mill, possess three main components: an assertion that outcomes be assessed on their impact on the 'social good'; a criterion as to what constitutes social good; and the principle that individual good is cardinally measurable and comparable over persons and time (Perman *et al.*, 1996). However, difficulties were encountered in measuring utility cardinally. Neo-classical utilitarianism overcame this by dropping the strong cardinal measurement requirement. The resulting weaker utilitarianism defines 'good' as the utility generated, and utility as the satisfaction of individual preferences. Different packages of goods and services are ordinally ranked in terms of a preference ordering.

The concern of neo-classical economics is directed toward the achievement of utility maximisation through maximisation over individual preference orderings. The concept of Pareto efficiency is invoked to provide a more substantial description of the requirements for maximising utility, including the eradication of externalities that motivates the application of non-market techniques to the valuation of natural resources.

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of Hayek can be found in chapter 10.

However, optimality is not a unique solution, but dependent on the rights of individuals within the decision making process (Perman *et al.*, 1996), a situation recognised within the fundamental theorems of welfare economics.

The fundamental theorems of welfare economics recognise the relationship between initial endowments and welfare maximising outcome, stating that, for a given initial distribution of wealth, individual welfare maximising behaviour results in a welfare maximum for society through the satisfaction of individual preference. As property rights determine the structure of costs and benefits, each initial distribution results in a different welfare maximising position. Choosing between these different outcomes requires that a Social Welfare Function (SWF) is adopted, and different welfare positions ranked. However, rejection of the strong cardinal assumption of classical utilitarianism means that these different welfare positions cannot be ranked (Perman *et al.*, 1996). Neo-classical economics overcomes this limitation by assuming that income is distributed in such a way that the marginal utility of income is equated for all individuals, thus allowing a simple equally weighted aggregation of individual valuations.

In reality conflict between individual preferences requires that distributional judgements be made through the choice of a SWF. This is the basis for Arrow's (1951) Impossibility Theorem, which states that conflict between individuals means that no social welfare function can satisfy all. There is no meaning to total output independent of distributional and ethical judgements, and the supposed separation of efficiency and equity is misleading. The analytical simplicity of efficiency has led economists to adopt it with such devotion that it is scarcely thought of as normative. However, acknowledgement of the normative nature of economic techniques has led commentators, such as Page (1988), to argue that economists should embrace normative concepts to improve their analysis.

Another instance of the endowments relative nature of efficient solutions can be found in discussion of the Coase theorem. The Coase theorem states that, in the face of externalities, bargaining to a position of efficient allocation of resources can be achieved through the allocation of property rights to all resources. Individuals would be aware of their own cost and benefit structures, and the owner of the resource would be

able to charge for changes in the allocation of the resource should others consider it welfare enhancing. The strong version of the Coase theorem considers voluntary exchange with completely specified property rights to eliminate all Pareto relevant externalities, and produce the same efficient allocation of resources irrespective of where property rights are allocated. However, this requires that income effects are zero, markets are frictionless, and property rights can be costlessly established and enforced (Perman *et al.*, 1996). The weak and more analytically useful version is derived through the relaxation of these assumptions.

Acceptance of income effects or the existence of transaction costs will result in the allocation of property rights impacting on the Pareto allocation of resources. Property rights determine the level of transaction costs and income effects, and therefore the level of externality that is Pareto relevant (Perman *et al.*, 1996). Some economists, such as Demsetz (1967), consider such levels of externality to be optimal. However, this approach considers bargaining to take place within a given institutional structure. In fact, the transaction costs, as well as the externalities themselves are a function of the institutional setting (Perman *et al.*, 1996). It would be analytically convenient to be able to simply calculate costs and benefits and consequently determine the rights structures that maximise welfare, but this ignores the fact that costs and benefits are themselves a function of the rights structure. Consequently, rights cannot be justified by reference to costs and benefits.

The lack of attention to distributional issues is the main point of divergence between utilitarian and deontological moral frameworks. The deontological perspective criticises the narrow definition of human behaviour espoused by utilitarianism, distinguishing between utility based on goods and services consumed and well-being defined as a broader motivation. Sen (1987) regards well-being as including attributes that people enjoy as citizens. For instance, freedoms such as democracy, free speech, and tolerance. While utilitarianism would regard these attributes as having only instrumental value as they contribute to the generation of utility, Sen considers such freedoms as having intrinsic value, and thereby directly impacting well-being. Sen extends his criticism of utilitarianism further arguing that individuals have objectives beyond self-interest that

they wish to see achieved[8]. These may include the elimination of poverty or the conservation of nature.

Expanding the notion of human behaviour beyond the narrow definition employed by utilitarianism, deontology is a duty or rights based definition of individual well-being (Perman *et al.*, 1996). That is, it assigns morality to actions and their confirmation with rules and procedures encapsulating human rights to fundamental freedoms, rather than according to their consequences. The key message is one of free action. Distributions are only just if they result from free choices. The consequences of actions only become relevant once freedom of choice is observed.

Deontology's emphasis on the 'ethical rationality' of norms or rights represents the currency of Schumacher's meta-economics. In 1974 Schumacher wrote:

> Economics operates legitimately and usefully within a given framework which lies altogether outside the economic calculus. We might say that economics does not stand on its own two feet, or that it is a derived body of thought – derived from meta-economics (1974: 38).

Thus, meta-economics describes the context of economic activity, such as morals and the environment. Rather than being incorporated into economic valuations, moral values reflect a different level of analysis. Thus, there are many standards of value, as well as some ordering principle for determining which takes precedence over the others. Typical are Rawlsian rules introducing a lexical ordering amongst values, such that one value only comes into play once another has been satisfied (O'Neill, 1998). For instance, rights win against any other values.

The utilitarian and deontological alternatives in political theory introduce the distinction between consumer and citizen values. As Sagoff (1998: 214 – 15) distinguishes between them, "consumer preferences, for example, to buy Pepsi rather than Coke, reflect what the individual thinks is good for her or him. Citizen values, in contrast, reflect principles the individual believes are implicit in the character, commitments, or identity of the

[8] For a further discussion of Sen's work in this area see chapter 8.

community as a whole". Consumer values are the given, subjective preferences assumed by economists, while citizen values are a "richer register of human aspirations", included in which is concern for the state of the natural world (Holland, 2001). Opposition to the application of economic valuation techniques to natural resources thus rests upon the commensurability of the citizen and consumer value attached to resources.

The role of this "richer register of human aspirations" has been applied to the allocation of environmental resources by a number of authors, most notably Mark Sagoff (1988, 1998). Sagoff (1988) argues that it is a serious error to regard ethical or aesthetic objections to environmental damage as external costs that can be entered into the market mechanism, as this illicitly transforms ethical values into individual preferences. That is, citizen and consumer values are non-commensurable; they are based upon different objective functions, the costs and benefits of which cannot be balanced in arriving at decisions. There is a 'category' mistake involved in attempting to incorporate moral values concerned with fundamental human rights into economic valuations concerned with consequences for utility judged according to individuals' preferences.

The criticism of the incorporation of environmental citizen values into economic valuation is based on the idea that the market (and other forms of monetary valuation) is blind to the reasons underlying judgements. That is, rather than evaluating whether or not judgements are true or false, economics evaluates judgements according to their holders willingness to pay. What counts is how much individuals will pay to satisfy their wants. This is tantamount to assessing the credibility or validity of these judgements by their proponents' willingness to pay for their being accepted or acted upon. Sagoff (1988) suggests that to arrive at environmental decisions in this way is equivalent to trying to decide whether a person on trial is guilty by discovering, before any evidence has been heard, what the preferences of the jury are in this regard, and then calculating the net benefit of the two possible verdicts, or deciding the outcome of a football game according to the aggregation of the preferences of the spectators[9].

[9] Though there might be a case for the argument that this is how football matches held at Old Trafford, the home of Manchester United, are actually decided.

Keat (1997) agrees with Sagoff that there are category errors involved in incorporating moral norms into economic valuations, but disagrees with his characterisation of citizen and consumer values. While Sagoff (1988) distinguishes between 'judgements' and 'preferences', Keat (1997) argues that one can talk of the reasons behind people's preferences or desires, thus not confining the concept of judgement to citizen values. However, Keat acknowledges that although preferences are normally based on judgements, it is a "highly significant failure of the market [...] that such questions have no role or function in how it operates" (1997: 36). Market transactions take place without reference to the reasons for which consumers prefer what they prefer. Thus, if individuals can be accepted as the best judge of what is in their interest, an assumption often criticised, then the market's blindness to reason is inconsequential (Keat, 1997). That is, the reasons behind values are the domain of the individual, and the neo-classical approach holds. However, it is argued that the reasons behind citizen values do not relate to the determinants of individual well-being, but instead to ethical judgements with regard the attainment of aggregate well-being. Preferences are seen as the product of social processes, rather than exogenously given, developing throughout a person's lifetime, and it is the process of social interaction and deliberation giving rise to preferences that imbues preferences with what Sagoff (1988) refers to as "ethical rationality". In this case, it is argued that it would be a conceptual error to treat ethical judgements as if they were judgements about individual well-being, and to incorporate them into the market:

> [Ethical claims] state what a person believes is right or best for the community or group as a whole. These opinions may be true or false, and we may meaningfully ask that person for the reasons that he or she holds them. But an analyst who asks how much citizens would pay to satisfy opinions that they advocate through political association commits a category mistake. The analyst asks of beliefs about objective facts a question that is appropriate only to subjective interests and desires (Sagoff, 1988: 94).

Keat (1997) identifies two forms of ethical judgement: those concerned with the expected contribution of the proposed course of action to the well-being of all or some of those affected by it; and those which do not. The most obvious cases of the latter

kind are ethical judgements involving the ascription of rights, as those espoused by the deontological perspective outlined above. Keat then argues that both forms of ethical judgement should be excluded from economic valuations. The former as they are attempts to perform the same role as the market: to arrive at calculations of aggregate well-being. To do otherwise would run into problems of 'double counting'. The latter as their rationale implies that the utilitarian framework upon which the market is based is not the ethically correct way of making decisions. Attributing rights places limits on what would otherwise be the implications of aggregate welfare calculations.

Thus, the assumption of commensurability should be rejected. If I care about something, then one way of expressing that care is to refuse to put a price on it:

> When Darius was king of the Persian empire, he summoned the Greeks who were at his court and asked them how much money it would take for them to eat the corpses of their fathers. They responded they would not do it for any price. Afterwards, Darius summoned some Indians called Kallatiai who do eat their parents and asked in the presence of the Greeks [...] for what price they would agree to cremate their dead fathers. They cried out loudly and told him to keep still (Herodotus, *Histories*; quoted in O'Neill, 1997: 79).

2.4 Commensurability and the impact of market expansion on traditional resource use norms.

The notion of the commensurability of citizen and consumer values can be applied to the discussion concerning the impact of market expansion on the efficacy of traditional Karen resource use norms that we left back in chapter 1. That is, the debate concerning the distinction between moral commitment (Wade, Scott) and individual maximisation (Olsen, Popkin) parallels that concerning the commensurability of citizen and consumer values. If citizen and consumer values are commensurable it would suggest that the norms underlying community resource regulation are of a qualitatively similar form as the consumer values prevalent in the market, and norms based sanctioning systems operate through the manipulation of individual benefits and calculations based on self-interested rationality. In this case, the benefits provided by the market have the potential

to undermine commitments to social norms, and a situation in which market expansion can erode social norms can be envisioned. If, however, citizen and consumer values are non-commensurable this would likely be the result of moral norms being of a qualitatively different form to consumer values, and norms based sanctioning systems can be said to operate through the construction of 'ethical rationality'. In this case, the benefits brought by the market will not be expected to undermine community regulations, and traditional use systems based upon such norms can be said to continue to regulate the forest in the face of market expansion.

It is a small step from acknowledging the possible contribution of the commensurability debate to the determination of the effects of market forces on traditional communal norms to paralleling the debates within each discussion and recognising that they are based upon the same issue. That is, the debate concerning the nature of the sanctioning system underlying collective action can also be defined as that between the utilitarian and deontological conceptions of rational choice. On the one hand, Olson and Popkin adopt a utilitarian perspective, arguing that communal institutions are maintained through the manipulation of individual maximisation strategies. On the other hand, Wade and Scott accept a more deontological line of thinking, suggesting that collective action succeeds through the existence of reciprocity norms and the keeping of community members in moral debt. Thus, the parallels between the two debates can be represented as follows:

	Self-interested Rationality/ Commensurability	**Ethical-rationality/ non-commensurability**
Collective action literature	Popkin, Olson	Scott, Wade
Economic valuation literature	Neo-classical economics.	Sagoff, Keat.

Hence, it is suggested that determination of the commensurability of citizen and consumer values can contribute not just to the determination of the efficacy of applying economic techniques to the valuation of natural resources, but also to determining the possible impact of market expansion on traditional Karen resource use norms, thus contributing to the debate concerning the appropriate form of the Community Forest Bill in Thailand.

2.5 Commensurability: The socialist calculation debate revisited.

The major source of the assumption of the commensurability identified within environmental economics lies in the supposition that the rational resolution of practical conflicts requires a common measure through which different options can be compared. A classical statement of this utilitarian position can be found in J. S. Mill:

> There must be some standard to determine the goodness and badness, absolute and comparative, of ends, or objects of desires. And whatever that standard is, there can be but one; for if there were several ultimate principles of conduct, the same conduct might be approved of by one of those principles and condemned by another; and there would be needed some more general principle, as umpire between them (quoted in O'Neill, 1998: 122).

The dispute concerning the issue of commensurability and the nature of rational decision making in environmental economics is part of what O'Neill (1998: 121) refers to as "a long footnote to the calculation debates". The 'socialist calculation debate' was offered by the Austrian economists of the 1920s and 1930s as a defence of the market economy. Its central concern was to question the possibility of rational economic planning in certain forms of socialist economy. In particular, it asked whether rational action was possible in the absence of commensurability. Although they were preceded in the debate by the likes of Barone, Pierson and Weber, and the debate was later taken up by Hayek, Lange and Taylor, the following review of the calculation debate will

focus on the contributions of Ludwig von Mises and Otto Neurath, as it is here that the issue of commensurability is addressed most clearly[10].

Mises' (1935) argument in *Economic Calculation in the Socialist Commonwealth* is aimed against the possibility of a socialist economy. Part of the argument is targeted against Neurath (1973), who denied that rational economic choice required the existence of a single unit of calculation and advocated a 'natural economy' founded on calculation in kind. Mises' arguments against Neurath turn on assumptions about the nature of practical rationality and its dependence on commensurability. For Mises any rational decision requires the commensurability of different values (O'Neill, 1998). There needs to be a single common unit which reduces the choice between different options to a matter of calculation:

> The practical man [...] must know whether what he wants to achieve will be an improvement when compared with the present state of affairs and with the advantages to be expected from the execution of other technically realisable projects which cannot be put into execution if the project he has in mind absorbs the available means. Such comparisons can only be made by the use of money prices (Mises, 1949; quoted in O'Neill, 1998: 115).

Neurath's position is founded upon a rejection of just this account of rational choice. Neurath (1983) criticises the assumption made by Mises that values are commensurable. He rejects the possibility of units of pleasure upon which calculations could be made, suggesting that there is no possibility of a purely technical ordering of states of affairs, as pleasures are themselves incommensurable. In support of his argument, and the argument made by Sagoff and Keat above, Neurath points to the ineliminability of non-technical ethical judgements. Thus, rather than involving a single unit of measure that reduced decision making to a purely technical procedure, rational choice requires ethical and political judgement.

[10] A brief summary of the others' contributions to the socialist calculation debate can be found in O.Neill (1998).

The strength of Neurath's position becomes apparent in a problem that Mises raises with his own position, and one that makes very clear the relationship between the position of Mises and that of environmental economics (s. 2.2). Mises recognises that, even in a market economy, there exist 'non-economic goods'. For instance, environmental public goods. His response to this problem is to suggest that we cannot avoid making hard choices between non-economic and economic goods, and in doing so we are implicitly making economic evaluations of the non-economic (O'Neill, 1998). Rational decision making requires monetary units and, whether we like it or not, we are implicitly accountants, putting a price on unpriced goods. The economist is merely making this explicit.

Mises' position is implausible, accepting that there are economic decisions that involve non-economic, or non-market goods while at the same time suggesting that the only way such decisions can be made is through the market valuation of such non-market goods. His response begs the question (O'Neill, 1998). Mises simply offers a position which is plausible only if it assumes what it is supposed to prove – that all rational choices involve units of comparison to which rules of calculation can be applied. Neurath's account of what is going on here is stronger, allowing that comparability need not assume commensurability, that there is no rule that can be mechanically applied to produce a determinate decision, and that there is an ineliminable role for judgement (O'Neill, 1998). "For this reason, the continued dominance within economics of the [...] Mises assumptions about practical reason is one of economics' enduring foundational problems" (O'Neill, 1998: 121).

2.6 Defending utilitarianism: the commensurability of citizen and consumer values.

Much of the argument in defence of market economies can be stated as a response to the worry that, because, in market economies, economic decisions are not constrained directly by ethical considerations, that these economies are ethically indefensible. O'Neill (1998) distinguishes five arguments made to defend market economies from precisely this concern:

(i) Recognising that we live in a pluralistic society, it is precisely a virtue of market economies that decisions and outcomes are not determined by any ethical goal.

That is, it is not the job of economic institutes to promote the 'good' under some particular conception of it. Perfectionist accounts of public institutions should be rejected in favour of institutional arrangements which are neutral between different conceptions of good, and the market offers an institutional arrangement which realises this liberal principle of neutrality.

(ii) The market best realises the human good as an unintended consequence of the pursuit of other ends. The strategy at the centre of Adam Smith's 'invisible hand' defence of market economies is a version of this strategy. Other versions are offered by Jevons and Menger.

(iii)Through markets, a central or the central good of human life, individual autonomy, is best realised. In a narrow sense, the autonomy argument can be understood as a version of the neutrality argument. However, understood more substantially as a desirable state of character, the autonomy argument is perfectionist in form. J. S. Mill provides arguments of this kind.

(iv)The market facilitates rational decision making not possible in non-market economies, as it introduces a universal unit of comparison in making choices. This claim can be found in much work within the Austrian tradition, including that of Mises and Hayek, culminating in a set of arguments concerning the epistemic qualities of the market in discovering and distributing the information required for the coordination of their efforts[11].

(v) Markets are institutions that work because they reflect the "grain of human nature". That is, humans are self-interested or at best beings of limited altruism. However, through markets the activities of self-interested agents can produce outcomes which, from the perspective of the altruist, would be best.

This thesis will concentrate its effort on just two of these defences: (i) that we live in a plural society and the market realises the liberal principle of neutrality appropriate to this, and (v) that individuals are self-interested. These are the two reactions of economists identified by Keat (1997) in response to his criticism of them. That is, economists return to the assumptions required for the efficient working of the market with the intention of ensuring citizen values remain within the utilitarian definition of human good as given, self-interested, subjective preferences:

[11] For further discussion of Hayek's epistemic defence of the market see s. 10.7.

(a) In making decisions consumers are primarily concerned with their own well-being. That is, they are self-interested.
(b) Individuals are the best judges of their own well-being, and what may be expected to contribute to it. That is, preferences are subjectively determined.

The only way to defend the incorporation of citizen values into the market as not being a category mistake is to accept these assumptions (Keat, 1997). If they are accepted, the market can be said to be efficient in the sense of maximising aggregate well-being, and the use of Cost-Benefit Analysis (CBA) as a guide to intervention in order to correct market failings is justified. Let us take each of these assumptions in turn.

If we accept assumption (a), that decisions are based on concern for one's own well-being, then it seems quite reasonable to regard willingness to pay as a measure of the expected contribution of a good to one's well-being. That is, being prepared to pay more for one item rather than another would reasonably suggest that a greater benefit is expected from that item. Economists support the incorporation of citizen values into the extended CBA by attaching a more abstract meaning to preferences: one's utility is based on other people's consumption or utility (Becker, 1976a). Agents are said to prefer something in the sense that they would choose it in preference to other things. That is, the above criticisms are equated with the motivations underlying preferences. It is, therefore, argued that the axiomatic development of economic utility does not exclude any particular preference. From this perspective, rather than a fundamental break from the utilitarian tradition, citizen values represent anomalies within that system (Hanley and Spash, 1995).

However, even if this argument is entirely legitimate, and citizen values represent a form of preferences, the problem remains the ability of economic valuation to capture the motivations underlying preferences. That is, while it might be possible to incorporate citizen values within an extended CBA without stumbling upon conceptual anomalies, doing so misses the information present in the reason behind such preferences. In the words of Keat (1997: 43), this employment of the concept of preference in justifying the incorporation of citizen values into CBA "denudes the related concept of efficiency of any prima-facie ethical significance: it is no longer at all

clear why the achievement of efficiency [...] should be seen as ethically desirable". Thus, irrespective of the mechanism by which value forms impact upon individuals, it is suggested that the role of community based resource regulation goes further and ensures that the 'true' value of resources is appreciated, a value that would be missed by the TEV.

It is in response to this criticism that economists point to assumption (b), that individuals are the best judge of their own well-being. If we accept this, then the fact that the market fails to respond to consumer preferences by evaluating them does not matter, as no such evaluation could be expected to improve on the judgements which consumers have made themselves. That is, defending their framework against the criticism of committing a category mistake, economists argue that Keat and Sagoff have assumed the ability to evaluate ethical judgements, that to criticise the market for "missing the reason behind such preferences" is to assume citizen values reflect a reasoning superior to that of consumer preferences. That is to say, Keat and Sagoff are cognitivist about value. They believe that beliefs about values can be resolved rationally. It is suggested that citizen and consumer values are non-commensurable as citizen values possess greater 'validity'.

Returning to a quote of Sagoff used earlier, we can see the belief that citizen values possess objective validity quite clearly:

> [Ethical claims] state what a person believes is right or best for the community or group as a whole. These opinions may be *true or false*, and we may meaningfully ask that person for the reasons that he or she holds them. But an analyst who asks how much citizens would pay to satisfy opinions that they advocate through political association commits a category mistake. The analyst asks of beliefs about *objective facts* a question that is appropriate only to subjective interests and desires (Sagoff, 1988: 94; emphasis added).

And,

> If pleasure or satisfaction itself were the goal, a good biochemist or hypnotist could provide it at little cost and the Big Lie would be better than the *hard truth* (1998: 219; emphasis added).

Indeed, Sagoff only refers to the non-commensurability of values as a manifestation of a more fundamental criticism of economic valuation, the "blindness of the market to reason". It is not only argued that citizen values reflect an "ethical rationality", distinct from the self-interested rationality perceived as underlying neo-classical economics, but that such ethical rationality reflects the 'truth' of values that the market, by combining all values within a single measure, is consequently blind to. In response to this, neo-classical economists return to their assumption that values are thoroughly subjective and do no more than express the preferences of the individual[12]. From this perspective, all ethical judgements are equally valid, as none have any legitimacy beyond the opinion of the individual. That is, the market's blindness to reason is inconsequential, as the ethical principles upholding values can have no objective validity.

Economists, as "meta-ethical sceptics", deny the possibility that there are any rational justification for ethical judgements. They argue that "there is no way of supporting one judgement against another: all are 'equally valid', [...] though only because none have any such 'validity' at all. More specifically, as subjectivists they claim that saying 'X is right' is the equivalent of saying 'I like or prefer X'" (Keat, 1997: 44).

Another way to describe the same point is to suggest that modern society is characterised by a pluralism – a diversity of equally valid concepts – of the good that the appropriate institutions in this context are necessarily neutral with regard the good, and that the market and the liberal state provide this role. O'Neill (1998: 16) describes this position:

> Recent liberalism has been characterised in opposition to perfectionism, as the view that public decisions and institutions are to be neutral between conceptions of the good. Such neutrality is required it is argued in virtue of the pluralism characteristics of modern society. [...] Given

[12] See Keat (1997) for a brief summary of this argument.

> the pluralism characteristic of modern society, perfectionism entails a political practice which is at best authoritarian, at worst totalitarian. It necessarily involves the imposition of a contested conception of the good life by coercive means. Hence, modern pluralistic societies require economic and political institutions, the market economy and liberal state, that are themselves neutral between different conceptions of the good.

The most explicit and developed formulation of this position is to be found in Austrian economics. Hayek presents the market order of the 'Great Society' as a response to pluralism:

> The Great Society arose through the discovery that men can live together in peace and mutually benefiting each other without agreeing on the particular aims that they severally pursue. The discovery that by substituting abstract rules of conduct for obligatory concrete ends made it possible to extend the order of peace beyond the small groups pursuing the same ends, because it enabled each individual to gain from the skill and knowledge of others whom he need not even know and whose aims could be wholly different from his own (Hayek, quoted in O'Neill, 1998: 19).

The market allows individuals with different ends and beliefs about the good to cooperate with each other, as it is "in principle unprincipled" or amoral. The alternative to the market is either continual enmity and social discord or the resolution of difference by forcible imposition of one set of ends by the state. Hence, the case for the market is not that it realises some specific end or good, but rather that it is neutral between different conceptions of the good. Indeed through market exchanges actors might contribute to the realisation of ends to which they might be opposed.

2.7 Objectives and summary

In summary, the commensurability of value forms would seem to be divisible into two issues: whether norms are based on self-interested benefit functions; and whether norms are determined subjectively. Each is addressed by one of the core assumptions underlying neo-classical economics and utilitarian moral philosophy. It is the objective of the remainder of this thesis to explore these two assumptions, thus contributing to the debate concerning the commensurability of value forms and clarifying the conceptual issues underlying the moral philosophical presuppositions of different social scientific approaches.

Resolution of these two issues will contribute to the determination of, first, whether economic valuation should attempt to incorporate citizen values and, secondly, whether community based resource regulation is likely to ensure the conservation of forest resources as implied within the Community Forest Bill in Thailand. Firstly, if norms are based upon self-interested individual benefit functions, it might be expected that they can be incorporated into economic valuation without agents experiencing ambivalence and that traditional norms face being undermined by the alternative incentives prevalent in the market. Secondly, if norms are found to be subjectively determined, possessing no more validity than any other norms, both the claim that traditional norms possess some privileged position regarding the functions of the forest and the argument that their incorporation into the market results in the loss of such information are undermined.

Thus, having begun with the standard, practical questions of the appropriate role of communities in forest policy in Thailand and the efficacy of employing market valuation techniques in allocating natural resources, the identification of more fundamental issues underlying both of these questions causes us to turn to debates and issues rarely considered in addressing these questions.

2.7.1 The development of the thesis.

The approach adopted within this thesis is somewhat unconventional (see s. 2.7.2 for a summary of the thesis structure). While this is partly the result of the breadth of scope

and complexity of the issues involved, on its own this is insufficient explanation of the specific shape of the argument. Indeed, that the potential breadth of the argument extends beyond the discussion undertaken, and that alternative arguments may have been employed in addressing the questions raised, means that the specific theoretical debates reviewed, empirical investigations undertaken, and the relationship between these aspects of the thesis requires further justification. Perhaps the best way to provide such a justification is through a description of how the thinking developed in the course of researching this thesis to finally arrive at the approach described above.

2.7.1.1 The relationship between metatheoretical discussions and empirical studies.

On initially arriving in Thailand to undertaken the fieldwork for this thesis, the intention was to investigate the anomalies identified in responses to Contingent Valuation (CV) surveys in order to examine the impact of moral norms on the efficacy of the economic valuation of natural resources. In particular, literature reviews had revealed interesting parallels between market failure in allocating public goods, the problems applying economic valuation techniques to such goods, CV anomalies, the role of moral norms in communal action, and the efficacy of communal action in allocating public and communal goods. That is, it was suggested that the link identified between common property rights and moral norms, and between common property rights and public goods, could be used to investigate the impact of moral norms on CV responses through attempts to value common property resources with a CV survey.

It was resolved that an empirical study should follow a number of angles if these parallels, and the cause of CV anomalies were to be investigated. Firstly, an instance of common property had to be identified. The forest management regime of the Karen provides a good example of such institutions. Secondly, the moral beliefs of the Karen underlying these property rights had to be elicited. Surveys were thus designed to topographically map the spirit beliefs of the Karen with regard the forest, as well as their common property management regime, as discussed chapter 7. Thirdly, the relationship between these moral norms and the public nature of the resources had to be identified. It was intended that the public nature of the services provided by the forest resources of the Karen be identified through consideration of the ecological characteristics of the resources. In turn, this required a pre-existing ecological survey be

identified. Finally, the possibility of allocating such communal property resources through the market mechanism would be investigated through the monetary valuation of such resources within a CV survey. An analysis would be undertaken of people's motivations in responding to the CV survey in the way they did in order to determine whether the moral norms underlying the allocation of the resources were the cause of anomalies experienced in the application of CV surveys to such resources.

Thus, it was intended that an area of northern Thailand that had been subject to an ecological survey be identified, an appropriate indigenous village be located within that area, the common property rights and spirit beliefs of that village be mapped, and then a CV survey attempting to monetarily value the forest resources regulated communally be performed.

However, whilst waiting for permission to research in Thailand from the relevant authorities, and whilst searching for research sites and assistants, further reviews of the literature revealed the fundamental conceptual issues underlying the commensurability debate with which the CV anomalies discussion was concerned. In particular, the two question with which this thesis is concerned: the objectivity of moral norms, and the relationship between moral norms and individual benefit functions. Further reading revealed the philosophical debates underlying the objectivity-subjectivity issue, and the parallel between the direction perception approach to explaining conceptions of nature and the scientific realist perspective, both of which maintain the possibility of objectivity in knowledge. Furthermore, an interest in evolutionary psychology suggested that evolutionary explanations of environmental preferences might provide a source of the necessity in knowledge required for objectivity (see s. 2.7.2.1 for further discussion of these issues).

Digesting these issues, and reflecting how the planned research might be used to contribute to the questions raised, it was realised that the intended investigation into the anomalies in CV survey responses could be used to address the question of the relationship between moral norms and individual benefit functions, as described in Part III of the thesis (see s. 2.7.2.2). Moreover, it was realised that a comparison of the ecological survey and the mapping of Karen spirit beliefs might be able to reflect upon

the commonalities in conceptions of nature predicted by direct perception, and thus the claim to objectivity in knowledge (see s. 2.7.2.1).

The use of a CV survey is not perhaps the most obvious method of going about investigating the teleological structure of moral norms. If this question had driven the design of the fieldwork from the start, it might be expected that a more conventional ethnographic investigation might suffice to explore this issue. However, having initially entered the field with the intention of investigating the anomalies in CV survey responses, and subsequently realising the relationship between these anomalies and the debate concerning the respective structure of economic preferences and moral norms, the potential for using the CV survey that had already been designed in investigating this issue became evident.

Recognising the potential use of the intended research in addressing these more fundamental conceptual issues, it was resolved to change the emphasis of the research. This was partly motivated by the realisation that, in order to determine the commensurability of citizen and consumer values, and therefore decide whether economic valuation of natural resources is appropriate, or whether traditional communal management systems might contribute to a sustainable resource management regime, both conceptual questions require answering. That is, commensurability requires that both citizen and consumer values are subjective and can be reflected in an individual benefit function. If the practical question that initially drove the research – the appropriateness of economic valuation of natural resources – is to be resolved, both questions require addressing.

With this in mind, while the permission was obtained, and the other surveys implemented, a third survey was designed to examine the source and structure of people's environmental preferences in an attempt to investigate the potential of evolved environmental preferences as a source of objectivity. It is this survey that is described in chapter 4 (see s. 2.7.2.1).

Consequently, the objectives of the research were altered to address the conceptual, and more fundamental issues underlying the economic valuation of natural resources. Such a change in emphasis brought with it a range of moral philosophical and

epistemological arguments that were not only relatively new to the author, but which also had previously had little place in debates concerning the economic valuation of resources. It is with this in mind that it was decided to dedicate large parts of the following thesis to reviewing these arguments. That is, the emphasis given to reviewing philosophical arguments is justified with an audience of economists or other social scientists in mind. Thus, while the arguments may be somewhat caricatured from the perspective of the philosopher, they are written for the social scientists to whom they may not be quite as familiar.

2.7.1.2 The choice of research location.

As noted above, the fieldwork described within this thesis was initially undertaken with the intention of researching just among the Karen of northern Thailand. However, during the period in which research permission was being sought, an extra source of funding became available that allowed the sample population to be extended. It was initially intended that this extension should be restricted to other Karen villages. However, logistical problems, as well as difficulties in attaining the trust of particular villages in the politically driven context of Thai forestry, meant that criteria had to be dropped.

One instance illustrates the difficulties involved in gaining the trust of participants particularly well. Having trekked through the forests of the Doi Chiang Dao Wildlife Sanctuary to an isolated Karen village, a few days were spent on introductions and the piloting of surveys. After the pilot of the landscape preference survey described in chapter 4, the headman announced with a concerned expression that a village meeting had been called and that my presence was requested. Come the time for the meeting, the village elders were gathered in the dark, smoky atmosphere of the headman's kitchen, while the reminder of the village crowded around the door to listen in.

When everybody was gathered, a number of questions were asked regarding my background, my interests in undertaking the research, and my intended use of the results of the research. Particular attention being paid to my relationship with the Royal Forest Department. Further questions followed concerning my intentions for eliciting the villagers' preferences for various landscape pictures and the locations of the landscapes

in the pictures. Finally, everybody's curiosity seemed to have been satisfied, and everybody became more relaxed.

It was then that the concern of the villagers was explained. They had previously been visited by an American researcher who had surveyed the village's use of the local forest resources. The research was undertaken on behalf of the Royal Forest Department and concluded that the villagers were incapable of conserving the local forest and should be removed from their traditional lands to an alternative site outside the wildlife sanctuary. The villagers were thus unsurprisingly concerned by my questions concerning their management of the wildlife sanctuary, and had been particularly interested in my landscape preference survey, as they had thought that by stating their preference for a particular picture that they were selecting the location to which the village would be moved.

Such problems in locating appropriate Karen sites meant that the increase in the population size had to be facilitated through incorporating alternative, non-Karen research sites. It is this sequence of events that lead to the inclusion of a Thai sample population on top of the original Karen sample population. As is described in the thesis, the social norm of forest conservation that also existed within the Thai population made this extension consistent with the objectives of the research.

2.7.2 Structure of the thesis.

In order that the objectives outlined above are met, this thesis adopts a somewhat unconventional structure. The two questions underlying the issue of commensurability - the objectivity of moral norms, and whether they can be incorporated into individual benefit functions – are related in that the answers given to them both contribute to the conception of human action within the social sciences, and, in particular, whether the definition of economic man might be considered accurate. However, these questions are very different in nature. On the one hand, whether people are able to value norms monetarily without stumbling upon conceptual anomalies - whether such norms can be incorporated into individual benefit functions – is very much a positive, psychological issue. On the other hand, whether norms possess any objective validity is very much a

normative philosophical question. Thus, in the following exploration they will be dealt with separately.

The necessity of this somewhat unconventional approach can be illustrated through consideration of the complexity and interdisciplinary nature of the issues involved. A more conventional approach would review a particular literature, from which a specific hypothesis would be identified for investigation. Having described a methodology for investigating this hypothesis, empirical results would be presented and analysed, and conclusions drawn. However, the following thesis is based upon the objective of clarifying the conceptual issues underlying the commensurability issue, rather than the resolution of a single hypothesis. Within the scope of this objective, it is difficult to identify a single hypothesis that is able in any significant way to contribute to its achievement. The above discussion has already identified two questions important to achieving the objective of determining the commensurability of citizen and consumer values. Furthermore, within just one of these questions - whether moral norms possess objective validity – a number of pertinent hypotheses can be identified for investigation form the wealth and breadth of contributory disciplines. For instance, whether Piaget's genetic epistemology can explain environmental preferences, and whether there are commonalities between scientific and indigenous conceptions of nature. Hence, a number of implicit hypotheses are proposed in the course of this thesis, and the possible contributions to this complex objective are better served through a more discursive approach. To this end, the thesis is divided into four sections. Part I has identified the problem that it is the objective of the thesis to address, Part II and Part III attempt to clarify the issues underlying the commensurability of citizen and consumer values, and Part IV concludes.

2.7.2.1 Part II: The objective validity of moral norms.

Part II addresses the hypothesis that moral norms possess objective validity. The issue of the objective nature of knowledge is approached in chapter 3 through a review of the philosophy of science literature, as it is through addressing the objective nature of science that this issue seems most accessible. Following a summary of attempts to overcome the problem of induction in testing covering laws – the distinction between analytical and synthetic statements made by logical positivists, and Popper's suggestion

that the aim of science is refutation rather than confirmation of the deduced events – the Duhem-Quine underdetermination hypothesis and Kuhn's social explanation of theory choice are reviewed to suggest that knowledge is relative and subjective.

A similar epistemological position is identified within the social sciences in the work of Gadamer and Foucault, and more generally in anthropology's cultural relativism. However, a review of the foundational texts of this cultural relative perspective, and attempts within anthropology to deal with apparent human universals is used to suggest one possible form of objectivity: the existence of necessity in knowledge. Identifying such human universals, or necessity in knowledge as corresponding with a definition of objectivity that accepts epistemology as basic, the search for such necessity in knowledge is presented as the aim for the remainder of Part II.

Chapter 4 initiates this search by identifying one possible source of necessity in the evolution of environmental preferences proposed within the evolutionary psychology literature. However, problems for the acceptance of this evolutionary explanation of environmental preferences are identified in the fact that the debate concerning the explanation of such preferences is characterised by a culture-nature dichotomy. Following various commentators on this debate, the thesis mirrors the call for an interactionist perspective – the explanation of environmental preferences through a combination of universal/natural and local/cultural factors. Failing to find such a perspective in the literature, the interactionist approach found within Piaget's genetic epistemology is proposed; a perspective that maintains the possibility of necessity in conception.

Piaget's proposal that concepts are developed through the application of the principles of 'assimilation' and 'accommodation' to experience of the environment – an experience ensured by a set of primitive schema – is elaborated upon. The expected form of environmental preferences emerging from these insights is hypothesised, and an investigation of the ability of Piaget's approach to explain environmental preferences is designed through the investigation of landscape preferences. Eliciting respondents' preference between pairs of pictures in northern Thailand – thus attempting to address the criticism that such approaches tend to be focused in western societies – the possible existence of necessity in environmental preferences, though expressed in a locally

determined context, is identified. However, this investigation proves inconclusive, as the approach adopted is one of proving a universal from a universal. That is, Piaget's concept of developmental necessity is only one possible universal that could be used to explain such preference universals. The existence of universal aspects of environmental preferences cannot on its own be used to conclude that a process of rational necessity underlies the development of preferences, as suggested by Piaget's genetic epistemology. Instead, such a result would be consistent with, for instance, the learning of an ecological universal.

Chapter 5 outlines a number of problems with the naturalistic epistemology approach adopted in chapter 4 – that of applying psychological investigation to the resolution of epistemological questions. In particular, the claims of psychology to provide objective knowledge of the nature environmental preferences is burdened with the same epistemological problems facing science in general, outlined in chapter 3. Furthermore, the application of folk psychology – the explanation of human behaviour through beliefs and desires – within the human sciences opens the objectivity of psychology to further criticism. That is, the holistic nature of beliefs and desires means that an infinite number of belief/desire combinations can be thought to underlie an action, and beliefs and desires cannot be measured independently of the theory by which they are related to actions. Hence, the human sciences are unable to establish causal laws. The naturalistic project in the human sciences is undermined.

A number of alternatives are proposed in response to the failure of the naturalistic project based upon folk psychology. The behaviourist approach is reviewed and rejected as suffering from the same problems as folk psychology. The interpretative rejection of the naturalistic project – its replacement with folk psychology based upon understanding, rather than causally explaining actions – and the corresponding acceptance of relativism in knowledge of human subjects is summarised.

This decline into subjectivism and the corresponding abandonment of the possibility of objectivity in knowledge is challenged by a scientific realist definition of science. Rejecting the ontology that implicitly underlies the positivist description of science, scientific realism describes the ontological context of science as one in which events are not invariant. Instead, reality is structured and scientific laws are tendencies. Moreover,

while the fallibility of knowledge is recognised as resulting from our interests and the cultural context that cause us to focus on particular aspects of the structure of reality, there are still rational grounds for theory choice, and the possibility of objectivity is maintained. Furthermore, the possibility of necessity in knowledge is extended to social meaning.

The chronology of the development of scientific realism lends itself to the interpretation that it provides a defence of the epistemic status of science against the relativist critique concerning the relationship between theory and evidence. That is, scientific realism's rejection of relativism, as well as the timing of its emergence at the height of the relativist critique, could easily be interpreted as an attempt to answer the questions posed by this critique – questions posed against positivist science. However, this is not how scientific realism is presented in this thesis. Rather than maintaining positivism's strong claim to objectivity in knowledge, scientific realism is interpreted as an alternative conception of science. Indeed, if anything, the nature of the objectivity of knowledge that emerges from scientific realism could be said to be epistemologically inferior to that proposed by positivism. That is, scientific realism acknowledges of the fallibility of knowledge and the role of interests in the development of knowledge. However, at the same time it maintains the possibility of necessity in knowledge, even if this possibility is epistemologically inferior to that of positivism.

Chapter 6 identifies a parallel between the approach of scientific realism and that adopted by what is referred to as the 'direct perception' approach to explaining conceptions of nature. Recognising the inability of mainstream anthropology to explain what is known as the 'indigenous perspective' – the apparent 'oneness' with nature of indigenous peoples – due to its implicit adoption of Cartesian dualism within cultural relativism, the direct perception approach provides a way of overcoming the resulting disengagement of man and nature by explaining the development of conceptions of nature through direct engagement with the environment. Moreover, the direct perception approach mirrors key aspects of scientific realism: namely the notion of affordances used to explain our understanding of nature parallels scientific realism's notion of scientific laws as tendencies. Direct perception mirrors scientific realism in its maintenance of the possibility of necessity in knowledge, as well as the fallibility of knowledge.

Chapter 7 attempts to put the claims of scientific realism and direct perception to the test. Firstly, the emphasis on dislocation from resources in explanations of deforestation is identified as supporting the claim of direct perception that an appreciation of the value of resources requires engagement with those resources. Furthermore, commonalities in tree symbolism, and the fact that such symbolism tends to reflect the nature of the trees themselves, rather than being entirely socially constructed, also supports the claims of direct perception.

The claim that commonalities in conceptions of nature might be expected to result from the development of conceptions of nature based on direct engagement with the environment is then put the test through a comparison of the conception of the functionality of forest ecosystems within ecological science and Karen beliefs. A survey of the non-linear ecology literature suggested that the extent of biodiversity could be used as an approximation of the functionality of ecosystems from the perspective of ecological science. A survey of Karen belief systems revealed that the topographical distribution of resource spirit owners could be used as the corresponding indicator of Karen conceptions of the functionality of the local forest ecosystem.

A biodiversity survey of a wildlife sanctuary in northern Thailand was obtained, from which a topographical description of indicators of biodiversity was derived. Locating a Karen village within the area of the same wildlife sanctuary, a survey of the spirit beliefs of the village was undertaken. A topographical comparison of Karen spirit beliefs and indicators of biodiversity suggest that there are no commonalities in conceptions of nature.

However, rather than concluding that the direct perception and scientific realist approaches to understanding knowledge should be rejected, it is pointed out that direct perception merely allows for the possibility of commonalities. There is no suggestion that commonalities must occur. Moreover, the emphasis of both direct perception and scientific realism on knowledge as tendencies, as well as their acknowledgement of the fallibility of knowledge, can be used to explain the non-existence of commonalities. With this in mind, it is suggested that the non-existence of commonalities might be expected for the case of knowledge of the functionality of ecosystems. Not only are

ecosystems very complex, but the time periods over which their processes are through to be expressed extend well beyond those over which direct knowledge might be expected to be achieved. Moreover, the diverse interests of the Karen and ecologists would be expected to cause their respective investigations to focus on very different aspects of ecosystems, and thus produce different knowledges.

Part II concludes that, while there is both theoretical and empirical support for the existence of objectivity in knowledge, this is far from a closed debate, and further research is required if we are to get closer to its resolution.

2.7.2.2 Part III: Can moral norms be incorporated into individual benefit functions?

Part III then turns to the question of whether moral norms can be incorporated into individual benefit functions. Chapter 8 begins to answer this question with a review of the theoretical debate concerning the relationship between moral norms and the notion of economic man. Criticism of the notion of economic man is identified as focusing upon two issues: imprudence and altruism. In the context of the investigation of the respective structures of moral norms and economic preferences, the chapter focuses on the problems faced in incorporating instances of moral behaviour within the notion of economic man.

However, it is suggested that, while criticism of the notion of economic man tends to revolve around its equation with the notion of self-interestedness, this requirement emerges from attempts by economists to reconcile utilitarian and economic definitions of utility – the notions of utility as the tendency to produce 'good' and utility as preference satisfaction respectively. However, the economic definition of utility as preference satisfaction does not require that agents be self-interested. That is, rather than specifying the content of preferences, economics merely makes a claim regarding the structure of preferences: that they are teleological. It is thus suggested that consistency between the existence of moral norms and the concept of economic man require that moral norms have a teleological structure.

Chapter 9 then attempts to empirically investigate the structure of moral norms, and whether they are teleological, as consistency with the concept of economic man would

require. Identifying the association of anomalies (protest responses) in responses to Contingent Valuation (CV) surveys with the non-commensurability of citizen and consumer values (moral norms and economic preferences), it is hypothesised that such anomalies are a manifestation of the non-teleological nature of moral norms. Thus, it is suggested that the structure of moral norms can be tested by determining whether protest responses result when people are asked in a CV survey to monetarily value resources whose use and allocation is regulated by moral norms. Hence, having identified strong moral norms prescribing the conservation of forest resources among a number of groups in the northern Thailand region, a CV survey for the valuation of these resources is designed and implemented amongst these groups.

Although there exist social norms specifying the protection of the forest resources valued within the CV survey, it is concluded that the majority of responses are consistent with those expected of economic man. That is, while protest responses are observed, the motivations elicited as underlying the majority of these protests are consistent with consumer values.

However, problems with concluding the commensurability of moral norms and economic preferences from this evidence, and thus the teleological structure of moral norms, emerge from the fact that assumptions have to be made concerning the activation of such moral norms by the survey employed. That is, there is no way of knowing whether the survey performed activated the moral norms that were identified as relating to the resources being valued, and thus whether the results obtained contribute to our knowledge of the structure of such norms. This possibility is emphasised by the concern that the Contingent Valuation Mechanism presupposes economic values and is therefore flawed in its investigation of moral norms. While it is suggested that this concern ignores the argument that anomalies in CV survey responses are themselves a manifestation of such norms, the problem remains of knowing for certain whether or not norms are activated by a specific survey.

Moreover, this problem is exacerbated by the employment of a willingness to pay (WTP) response format within the above CV survey. That is, it is suggested that the admittance of willingness to pay could seem consistent, potentially, with a commitment to deontological values. A deontological value that supports the hypothetical scenario

presented in the CV survey – in this case the conservation of local forest resources – may well manifest itself in a large WTP. It is suggested that this shortcoming of the investigation might be overcome through the employment of a willingness to accept compensation (WTA) question format, as such deontological values would be manifest in significant protest responses to such WTA questions.

Chapter 10 identifies a similar problem underlying the source of knowledge in economics in general. That is, as economics employs a folk psychological description of behaviour, it suffers from an inability to measure the beliefs or desires underlying action other than through rational choice theory itself. Attempts at describing knowledge within economics as causal laws thus suffer from the inability to measure initial conditions separate from the theories to which they are applied. It is suggested that this epistemological problem underlies the lack of predictive success in economics that some commentators have identified.

Attempts at applying such causal theories in the generation of knowledge are identified as the epistemological approach underlying economics. Furthermore, arguments proposed by economists in support of this epistemological approach are shown to fail – in particular, Friedman's evocation of instrumental logical positivism. Finally, the adoption of alternative epistemological positions by some economists – Hayek's subjectivism, and Lawson's realism – is pointed to as further evidence of the epistemological problems of the naturalistic project in economics.

Part III then concludes that, while attempts at empirically testing the structure of moral norms suggest that they are consistent with the conception of economic man, the epistemological problems faced by the naturalistic project adopted within economics undermine this conclusion.

2.7.2.3 Part IV: Conclusion.

It is argued that the investigation undertaken proves unable to conclude whether citizen and consumer values are commensurable or not, and thus whether the utilitarian or deontological moral philosophy best describes human motivations. Instead, in reflecting upon the failure of the empirical investigations undertaken, and drawing on some of the

philosophical arguments outlined within the thesis, it is suggested that the main contribution of the thesis is to outline the epistemological issues underlying the development of knowledge in attempting to answer these questions, and how alternative epistemological positions can be used to derive different knowledge, which in turn perpetuates debate.

In particular, it is suggested that the naturalistic project within the social sciences suffers from a number of problems. Namely, the inability to measure beliefs and desires – the initial conditions within folk psychological causal laws – means that the social sciences fail in their attempt to develop accurate and improvable causal explanation. The caveats to the conclusions drawn in chapter 4 and chapter 9 are pointed to as evidence of this failing. In each of these cases, assumptions have to be made with regards the nature of the beliefs and desires that participants bring to the research situation; assumptions whose veracity cannot be evaluated except through the application of theory.

For instance, in chapter 9, the conclusion that moral norms are commensurable with economic preferences, and thus that moral norms are teleological in structure, can only be maintained if we assume that moral norms are activated by the survey performed and brought to the valuation problem. However, as actions can be the outcome of a large number of belief-desire combinations, and there is no way of actually measuring beliefs or desires, there is no way of knowing whether this is indeed the case other than through the application of the theory being tested. That is, the only way that we can know whether moral norms are activated is through the application of the hypothesis that anomalies in CV responses are a manifestation of the non-commensurability of moral norms.

Moreover, the debate concerning the structure of moral norms is used to demonstrate the possible contradictory knowledge available from the adoption of alternative epistemological principles. That is, while the positive epistemology adopted within the empirical investigation of chapter 9 suggests that moral norms and economic preferences are commensurable, the hermeneutic epistemology that underlies the more intuitive debate within the literature suggests that these two value forms are instead non-commensurable.

PART II

The objective validity of environmental norms.

This part of the thesis addresses the question of whether values can possess objective validity. That is, can we evaluate ethical judgements, or do they merely express the preference of their holders? Can we know something objectively, or is all knowledge subjectively determined? In particular, can environmental norms be thought of as possessing objective validity? However, designating such a broad philosophical issue as the subject matter of a thesis, and only part of a thesis at that, precludes a comprehensive survey of the relevant issues. Thus, before we continue, the choice of subject matter requires justifying, and the breadth of subject matter requires qualifying.

The choice of subject matter does not simply reflect an attempt to resolve an important aspect of the commensurability debate, though that is certainly a powerful argument for undertaking such research and is how it is presented within this thesis. Attempting to research such an interdisciplinary issue as the value and conception of nature inevitably requires that contributions from a range of subject areas be considered and related, in this case economics, psychology, and anthropology. Such an approach raises concern for the philosophical issues that define the different approaches within the social and behavioural sciences and the differences and relationship between them – issues that often goes unmentioned within such debates. The aim of the research is thus extended to incorporate these issues so as to portray the contributions of the different disciplines appropriately and to outline some of the limitations of the principles they accept. This topic is taken up once again in the conclusion.

The aim here is limited to an introduction of some of the debates of relevance from the perspective of the non-philosopher. That is, it is hoped that, rather than providing a new perspective on the issues discussed, the thesis provides a starting point for a social or behavioural scientist interested in the philosophical underpinnings of their subject. Thus, from a philosophical standpoint, the debate raised will be to some extent caricatured. The issues of concern have occupied philosophers for millennia and are far

too broad and detailed for justice to be done here to the minds that have contributed to their debate. Hence, the positions presented should not be thought to represent a comprehensive review of the philosophical debate, as the intricacies of the arguments are inevitably overlooked. Instead, they should be considered a sample of relevant philosophical arguments, a first step into a larger debate.

Considering the restrictions on the extent and scope of the discussion undertaken here, it is important that the reasoning behind the selection of specific philosophical issues be explained in the context of the subject matter chosen. The structure of this part of the thesis is very much informed by a two-way interaction between the identification of relevant theoretical debates and empirical investigations designed to inform them. Although the basis for this research are issues of concern within economics, the theoretical issues presented in Chapter 3 tend to focus upon debate concerning the objectivity of empirical observation in science as represented by the philosophy of science literature. While of relevance to the social sciences as well as the natural sciences, focusing on such issues overlooks the particular approach to subjectivism employed within economics, for instance that of the Austrian tradition associated with Menger, Mises and Hayek[1]. However, it was decided to concentrate on the philosophy of science literature because it is here that the objectivity/subjectivity debate is most accessible.

Based upon the findings from this theoretical review, two pieces of empirical work are undertaken, attempting to explore the possible existence of objectivity in environmental knowledge and values. Having identified the existence of 'necessity' in understanding as being required if citizen values are to be 'objective', Chapter 4 identifies the debate in psychology concerning the existence of innate aspects of environmental preference as potentially providing such necessity in the context of environmental values. The organisation of this debate according to the culture-nature dichotomy is used to suggest that environment preferences might best be explained using an interactionist perspective. In particular, Piaget's genetic epistemology is used to define such an interactionist perspective that also maintains the possibility of necessity in the development of concepts. Although an empirical investigation fails to prove

[1] For a brief introduction to subjectivism in economic theory see section 10.7, as well as O'Neill (1998).

conclusively that the Piagetian model explains environmental preferences, the possibility of necessity in the development of environmental preferences remains.

The employment of psychology to resolve epistemic debate raises a host of philosophical issues. Chapter 5 concentrates on the difficulties raised for investigations within the social and human sciences by doubts concerning the epistemic status of folk psychology, and identifies scientific realism as a potential solution to the problems of folk psychology and related claims of relativism. The debate within anthropology concerning the role of direct perception in the conception of nature, in particular the "indigenous perspective", is highlighted in chapter 6 as containing exactly this scientific realism verses relativism argument, and presented as basis for further empirical investigation.

Thus, having ventured once again into the territory of philosophical theory, the direction of the debate in Chapter 7 turns back towards the empirical. The prediction of commonalities in conceptions of nature emerging from the scientific realist and direct perception approaches is identified for investigation. A comparison of conceptions of environmental functionality within ecological science and Karen spirit beliefs is undertaken to contribute to this debate. Thus, the structure of the ensuing argument very much evolves through the interaction of empirical and philosophical debate.

In summary, it is suggested that, although recent trends within the philosophy of science literature would tend to favour the subjectivity or relativism of knowledge, there remains room within the debate for the possibility that knowledge possesses at least an element of necessity or objectivity. However, empirical attempts to identify such necessity within knowledge of the environment or the way the environment is valued prove inconclusive.

3. The objectivity of knowledge: Contributions from the philosophy of science and from anthropology.

3.1 Introduction

In an attempt to outline a theoretical basis for our discussion of the ontological status of environmental citizen values, this chapter briefly reviews recent debates within the philosophy of science concerning the problems faced by scientists defending the objectivity of their empirical observations, as it is here that the issue of the objectivity of knowledge is most accessible. Once the definition of objectivity and subjectivity has been elaborated (s. 3.2), the epistemic subjectivist argument is developed through the consideration of the underdetermination of theory by observation (s. 3.4), Kuhn's historical description of science as paradigms (s. 3.5), and Quine's holistic empiricism (s. 3.6). A shortcoming of epistemic relativism is identified in the form of mainstream anthropology's difficulties dealing with the apparent existence of human universals (s. 3.8). Finally, a possible approach to saving the objectivity of science, and thus a potential source of objectivity in environmental citizen values, in the form of 'necessity' in the development of knowledge is suggested for exploration in later chapters (s. 3.9).

3.2 Epistemological frameworks and the objectivity of knowledge.

The notions of subjectivity and objectivity have long been an interest for philosophers, particularly those engaged in epistemological and ontological investigations. Hence, it is to these philosophical concerns that we turn in an attempt to determine the nature of citizen values. In particular, in order to limit the scope of the discussion, we will pursue this investigation by considering the question, how reasonable is the claim that knowledge can be objective? In turn, it becomes important to define what it is we mean by 'objective'. Firstly, the distinction between epistemological and ontological objectivity should be made (Audi, 2000). Ontological objectivity is that which is not mind-dependent. Epistemological objectivity takes method as fundamental, and makes the distinction between intra- and inter-personal, between matters that depend on the psychology of the individual, and those that don't. Thus an epistemological objective question would be one answerable by a method used by any competent investigator,

while a subjective question would be one answerable only from the questioner's perspective.

From the epistemic perspective, objectivity is a grade of cognitive achievement, a property of the contents of mental acts and states (Audi, 2000). In this sense, only things such as judgements, beliefs, theories, concepts, and perceptions can be significantly be said to be objective or subjective. Bell (2000) identifies one notion of epistemic objectivity as that which entails 'presumptive universality': for a judgement to be objective it must possess a content that may be presupposed to be valid for all men.

Once the form of objectivity has been determined, we then have to decide whether we will take epistemic or ontological objectivity as basic. Either ontological or epistemic notions of objectivity can be taken as basic (Audi, 2000). Hence, if the epistemic notion is taken as basic, then objectivity in an ontological sense is derived from considerations of justification. That is, mind-dependence is a matter amenable to method. Conversely, if the ontological notion is taken as basic, the criterion for the interpersonal method and its objective use is a matter of its mind-independence. On the one hand, a realist position requires that ontological objectivity is taken as basic, as the epistemic objectivity of a belief is to be explained by appeal to the independent existence of the entities it concerns, independent of the cognitive access we have to them (Bell, 2000). On the other hand, a non-realist position does not require that beliefs be explained by appeal to independent reality, and epistemic objectivity can be taken as basic.

The remainder of discussion in Part II considers debate concerning the objectivity of scientific and social scientific knowledge. As various arguments are presented in favour, as well as against the possibility of objective knowledge, various definitions of objectivity are encountered. For instance, having reviewed arguments concerning the objectivity of scientific investigation, this chapter suggests that, if scientific objectivity is to be upheld, then some form of necessity in knowledge must be accepted. That is, while alternative definitions exist, including the coherence, justifiability, communicability and intelligibility of beliefs, it is the universal validity that underlies epistemic objectivity that is adopted. Furthermore, in chapter 5, a scientific realist perspective is presented that maintains this epistemic definition of objectivity, based on the universality of knowledge, but also maintains a realist position, and thus takes

ontological objectivity as basic. It is the possibility and nature of objective knowledge to which we now turn.

3.3 Deductivism, logical positivism and the problem of induction.

Emerging from the Reformation and the Enlightenment, scientific philosophy rooted knowledge in human rather than divine capabilities. The resulting "new science" of Copernicus and Galileo needed a philosophical defence against the dogmatism of the Church and Aristotle. It found its defender in Francis Bacon (1561 – 1626), who is generally recognised as the founder of the modern scientific tradition. Bacon theorised about science, and about knowledge in general, distinguishing two ways of discovering truth: experience as the moment of truth when hypotheses are tested and knowledge developed, and rational intuition guaranteeing the basic truth of axioms.

Out of this epistemology emerged what is referred to as the deductivist conception of science: a conception of laws as formulated in terms of constant conjunctions of events or states of affairs (Lawson, 1997). On this view, laws, which are referred to as 'covering laws', express regularities of the form 'whenever event x then event y'. Thus, according to deductivist explanation, some event, thing, or phenomena must be deduced from a set of initial and boundary conditions plus universal laws of the form 'whenever event x then event y'. This theory of explanation is also variously known as the covering law model, the Popper-Hempel theory of explanation, and the deductivist-nomological model, or D-N model for short.

Historically, encourgement for the deductivist conception of science and explanation stems from a version of positivism rooted in Locke's and Hume's analysis of causality. The first of Bacon's ways of discovering truth was adopted by John Locke in his *An Essay Concerning Human Understanding* (1690), a move that represented the origins of empiricism: "nothing is in the mind that is not first in the sense". It is empiricism and the notion that observation and evidence enable us to choose between theories that science takes for granted as the source of objective knowledge. However, how such knowledge is generated has yet to be fully explained.

Science does not accept knowledge that cannot somehow be subject to the test of experience. A traditional approach is the hypothetico-deductive (H-D) method. Given a hypothesis H that is to be tested, one deduces from H (in conjunction with initial conditions) an observational prediction O. If O turns out to be true, the hypothesis is said to be confirmed to some extent.

From the outset, however, science has explained by appeal to a realm of untestable entities, processes, things, events, and properties (Rosenberg, 2000a). It is the discomfort about the fact that such things seem both necessary – without appeal to them theory cannot effect the unification of observation and explanation – and unknowable – unobservable – on the part of philosophers that forms the basis for epistemological discussion concerning the subjectivity/objectivity of knowledge.

The problem with the inductive methodology of empiricism was first officially formulated by David Hume. In his *An Enquiry Concerning Human Understanding* (1748), Hume's pursuit of empiricism led him to face the problem of induction: how can we justify inferences from sensory experience (current and past) to the future and the sort of scientific laws and theories we seek. There are only two ways to justify a conclusion, those identified by Bacon: deductive argument (conclusion follows logically from the premises), and inductive argument (premises support the conclusion but do not guarantee it). Hence, in justifying induction, we are required to employ either a deductive or an inductive argument. However, doing so requires that we suppose the reliability of inductive argument. Rosenberg (2000a) illustrates this notion with the following argument in favour of the inductive method:

1. If a practice has been reliable in the past, it will be reliable in the future.
2. In the past inductive arguments have been reliable.

Therefore,

3. Inductive arguments will be reliable in the future.

While the argument is deductively valid, for it to hold the first premise requires justification, and the only satisfactory justification for the premise would be the reliability of induction, which is the argument that is supposed to be being established. That is, inductive arguments are left to justify induction, and empiricism struggles with

the epistemic requirement of basing induction and scientific investigation in a system of general principles or a system of derivative knowledge (Hollis, 1995). It is this problem with induction that produces scepticism about the empirical sciences: while we can observe "constant conjunctures of events", for science to conclude causation from this is sensible but not logically warranted.

A number of attempts have been made within empiricism to resolve this problem. One such attempt, associated with logical positivism, was to view scientific theories as instruments, heuristic devices, tools we employ for organising our experience, but not literal claims about it that are either true or false (Rosenberg, 2000a). On this view, theoretical claims are not abbreviations for observable claims, they are more like mnemonic devices, acronyms, uninterpreted symbols without empirical or literal meaning.

One of the proponents of the logical positivist defence of scientific theory was A. J. Ayer. Ayer (1936) argued that inferential propositions are necessarily true not by force of necessary fact, but just by the way we speak. It is their form, rather than what they say about the world that makes them true. In support of this argument, Ayer distinguished between the analytic and synthetic constituents of theory. Analytic statements represent theory's role as language, and have no substantive content. The resulting propositions, argued Ayer, are reducible upon definition of their terms to tautologies, whose denial is self-contradictory. That is, these analytic facts arise from the conventions of language. They are true by convention, relying on rules that have been constructed by humans. In this form, theory performs the role of a filing system, and cannot increase our knowledge of the world (Hollis, 1995). They may be supported by experience, but only because they never allow experience to refute them, as they state relations of ideas rather than matters of fact. That is, theoretical statements should not be thought of as true or false, as their role is to provide rules by which proper inferences can be made. As it is these relations/inferences that induction is considered responsible for, it is suggested that truth based upon induction does not rely on general principles. The validity of theory is based in its success in prediction, not in its appeal to axioms (Hollis, 1995). It is this predictive role of theory that is provided by its synthetic statements.

Thus, the inferences made by the inductive method in generating theories are justified as being necessarily true tautologies. Criticism of the inferences made in the application of the inductive method as only being justifiable through the application of the inductive method is mistaken, as such inferences reflect analytical statements, theory's role as language, rather than its substantive predictions. The metaphor of theory as a filing cabinet, as a heuristic device for organising experience, changes the aim of science from merely discovering facts to organising these facts into a coherent system, a role performed by theory. The analytic statements of theory are translatable into a set of factual, substantive statements, but theoretical terms themselves do not refer to unobservable entities, this is the role of synthetic statements (Boylan and O'Gorman, 1995).

Thus, logical positivism attempted to defend empiricism by distinguishing between the observational and non-observational terms in which scientific laws and theories are expressed, and by arguing that it is our knowledge of the behaviour of observable things and their properties which confirms and disconfirms a theory (Rosenberg, 2000a). The court of last epistemological resort is maintained as observation.

3.4 The underdetermination of theories.

The problem of induction states that, as theories infer beyond the data available, they cannot be conclusively confirmed, as experience can only provide evidence of a small part of the instances the theory applies to. Thus, as first pointed out by Hempel (1945) in his Paradox of the Ravens, while empirical evidence supports a hypothesis to some degree, it may also support many other hypotheses to an equal degree[14]. That is, in the foregoing H-D schema, if H is confirmed, so is H&X, where X is any arbitrary statement. Following Karl Popper (1963), some philosophers have thus exploited the asymmetry in empirical matters between proof and disproof, arguing that while no universal empirical theory can be proved, owing to our ignorance of the totality of phenomena, a universal theory can be disproved by only one counter-instance to it. That is, scientists never seek evidence to confirm hypotheses, but only to falsify them through the method of 'conjecture and refutations'. That is, once again in the foregoing

H-D schema, if O turns out to be false, one can immediately conclude that at least one of the premises is false. If one has sufficient confidence in the truth of the initial conditions, one can conclude that H has been refuted. Science progresses by subjecting hypotheses to increasingly more stringent tests until the hypotheses is falsified and its limits established, and its accuracy and predictive power improved.

However, the claim that hypotheses are falsified is also argued to be incorrect, as nothing follows from a general law alone. Pierre Duhem (1954) pointed out that, in addition to the hypothesis being tested and statements of initial conditions under which the test is conducted, we also need auxiliary hypotheses to carry out the deduction of observational consequences in the H-D schema.

Rosenberg (2000a) illustrates this notion through consideration of the statement "all swans are white". He tells us that it does not follow from this statement that there are any swans, still less that there are white ones. That is, testing this hypothesis requires auxiliary hypotheses, further statements about the conditions under which the hypothesis is tested. For instance, testing the hypothesis "all swans are white" first requires that certain objects be established as swans, and doing so requires that we assume the truth of other generalisations about swans besides their colour. Moreover, no single falsifying test will tell us whether the fault lies with the hypothesis under test or the auxiliary hypotheses – what if the grey bird thought to falsify the hypothesis "all swans are white" is actually a goose? Thus, Rosenberg argues, the logical possibility that any auxiliary hypotheses might be wrong, a possibility that cannot be denied, means that any hypothesis that is tested can be preserved from falsification by giving up and attributing falsity to the auxiliary assumptions.

Hence, as a matter of logic, scientific law cannot be completely established by available evidence, nor conclusively falsified by a finite body of evidence. No single scientific claim meets the test of experience by itself. It does so only in the company of other hypotheses needed to effect the derivation of some observational prediction. It is the complicated nature of the testing of hypotheses that provides us with the Duhem-Quine "underdetermination" thesis (Rosenberg, 2000a). That two or more hypotheses are

[14] For a summary of this argument against confirmation as a source of evidence in favour of a hypothesis

always required in any scientific test means that when a test-prediction is falsified there will always be two or more ways to "correct" the hypothesis under test. When theories become more complex, involving numerous hypotheses, it is open to the theorist to make one or more changes in the theory in light of a falsifying test, any one of which will reconcile the theory to the data. The large number of possible changes introduces a degree of arbitrariness foreign to our picture of science, as slack is introduced into the relationship between theory and observation (Rosenberg, 2000a). In short, theory is underdetermined by observation.

However, science does not show the proliferation of theory and the kind of theoretical disputes that the possibility of underdetermination might lead us to expect (Rosenberg, 2000a), something that demands explanation. If, owing to the ever-present possibility of underdetermination, theoretical consensus is not achieved through the "official" method of testing through observation and experiment, how is it achieved? Rosenberg (2000a) suggests two alternative responses to this question: that observation really does govern theory choice, but as yet we have not figured out how; or that observation does underdetermine theory, but that theory is fixed through some other process. It is this second alternative to which Thomas Kuhn turned his attention.

3.5 Kuhn's history of science.

In his *The Structure of Scientific Revolutions* (1970), Kuhn was among the first to explore the history of science for non-observable factors in theory-choice. Kuhn considered periods of scientific changes, suggesting that periods of revolutionary change in science alternated with periods of "normal science". He suggested that the term "theory" did not describe the intellectual core of a programme of normal science. Instead, he coined the term "paradigm". Paradigms drive normal science, and differ from the account of science advocated by logical positivists. Instead of following where data, observation and experiment lead, normal science dictates the direction of scientific progress by determining what counts as an experiment that provides data we should treat as relevant, and when observations needs to be corrected to count as data.

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see Dancy and Sosa (2000) or Rosenberg (2000a).

The logical positivists hold that theories succeed one another by reduction, which preserves what is correct in an earlier theory and so illuminates the history of science as progress. However, Kuhn challenges this position, suggesting that, under the auspice of normal science, three sorts of empirical inquiries flourish: redetermination of previously established observational claims to greater degrees of precision; the establishment of facts without significance or importance for themselves but which vindicate the paradigm; and experiments undertaken to solve problems to which the paradigm draws our attention. Moreover, failure to accomplish any of these aims reflects on the scientists rather than the paradigm. That is, during normal science research focuses on applying the paradigm to the explanation and prediction of data. What cannot be explained is outside its intended domain, and within its domain what cannot be predicted is experimental error.

Kuhn insists that paradigms do not triumph according to anything like the experimental method suggested by empiricists: observational terms are used to describe the data which epistemically controls theory; theory and observation are distinct. In doing so Kuhn makes the epistemologically radical claim, denying that there exists a vocabulary that describes observation and that is neutral between competing theories. That is, paradigms not only extend their influence to theory, but they also dictate observation. Terms by which we describe observations presuppose a division of the world of experience into categories that reflect prior theories. In other words, the categories we use to classify things are shot through with interpretation.

Paradigm change, then, occurs when radical solutions are sought to the anomalies and puzzles that are incompatible with the paradigm. Revolutions occur when these anomalies resist solution long enough. As more and more scientists attach importance to the problem, radical solutions are sought that become potentially paradigm wrecking. Moreover, during these periods of competition between old and new paradigms, nothing between the paradigms can be settled by observation or experimentation, as observational data are already theoretically charged. Instead, the most significant factors in choosing between paradigms are social factors.[15] The lack of a role for observation in

[15] Specifically, Kuhn points to two principles that influence the composition of a paradigm: the intellectual and the institutional. Intellectually, a paradigm consists of a set of guiding axioms which can shift in the course of reasoned debate, despite the fact that the framework actually sets the canon of

choosing between paradigms means that paradigms become incommensurable: though a new paradigm may have solved the anomaly of its predecessor, it may leave unexplained phenomena that its predecessor successfully dealt with. That is, there exists explanatory loss.

However, there is more to incommensurability than explanatory loss. Kuhn seems to argue that paradigms are incommensurable in the sense of not being translatable one into the other. This makes explanatory loss immeasurable and underwrites the further claim that paradigms do not improve on one another, and therefore that science does not cumulate in the direction of successive approximations to the truth. Scientific "progress" seems more a matter of replacement than reduction. According to Kuhn, we must take seriously the notion that scientific revolutions really are changes in world-view. That is we should view succession in paradigms the way we view changes in fashion, literature, music, art and culture (Rosenberg, 2000a). Hence, science can make no claims to epistemic superiority, or to be more objectively progressive.

3.6 Quine's Holistic Empiricism.

The conceptual underpinning of Kuhn's historical description of scientific change lies in the work of W. V. O. Quine, who attacked logical positivism from "within" (Rosenberg, 2000a). Quine (1953, 1981) denied the analytic-synthetic distinction, a move that gave rise to a holism in thinking about how theory confronts experience, and the underdetermination which spawns Kuhn's approach to the nature of science.

Quine (1981) demonstrates how factual beliefs do not stand in isolation but occur as part of a system of beliefs. Starting with logical positivism's assumption that sentences can exist in isolation from one another, Quine describes how the supposedly factual ideas expressed in these sentences are dependent upon the meaning of the words used to construct them; how the meaning of these words are, in turn, dependent upon their context of proposition, the sentences within which they are contained; and how the meaning of sentences depends upon the system of sentences to which they belong. In

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reasoned debate. Institutionally, science is kept on track by social mechanisms: organised activity, the hierarchy of power, academic apprenticeships, and structures established to organise funding support. Paradigm shifts are, therefore, more likely to occur with deep shifts in the structure of power.

doing so, he demonstrates that there is no purely factual language independent of theory, and thus adequate for scientific descriptive purposes (Boylan and O'Gorman, 1995). Factual beliefs do not stand in isolation, they occur in a holistic system of beliefs: "the totality of our so-called knowledge or beliefs [...] is a man-made fabric which impinges on experience only along the edges" (Quine, 1953: 42).

Given this holistic dimension of language, theory becomes indispensable for factual description. Thus, as description is theory-laden, the analytic-synthetic distinction underlying logical positivism's support for the empirical method (s. 2.3) is rejected. It follows that no observation taken in isolation can correspond to an identifiable portion of the external world, as neither experience nor theory is "pure". Instead, our factual statements come before the bar of experience holistically, and the unit of empirical support is the entire holistic theory (Boylan and O'Gorman, 1995; Rosenberg, 2000a). Statements can be preserved as true by simply revising some other part of our system of belief, and there is no guarantee of harmony between observation and belief: the Duhem-Quine underdetermination thesis.

Quine's holism of meaning is similar to and mutually supportive of the epistemological thesis of holism in the way data tests theory (s. 3.4). However, if theory meets data as a whole, and the meaning of a theory's terms are given by their place or role in the theory, then we have more than a philosophical explanation of underdetermination. In this case, there are no meanings, or truths of meaning distinct from theories about the world, and we also have a philosophical foundation for incommensurability (Rosenberg, 2000a): our holistic epistemological concepts give us no guarantee of the same world across theoretical divides, and truth becomes relative to the specific paradigm.

3.7 From philosophy to history to relativism.

Kuhn's doctrine has generally been interpreted so as to give rise to relativism: the notion that there are no truths, and that disagreements between positions are irreconcilable. That is, the incommensurability of paradigms – explanatory loss and the inability to translate between paradigms – deprives epistemology of a paradigms-neutral

position from which to access competing paradigms, and provides an invitation to epistemic subjectivism (Rosenberg, 2000a). Kuhn himself was ambivalent about whether to plead guilty to the charge of epistemic relativism about paradigms, but other philosophers are keen to transform his work to this end (Rosenberg, 2000a). Most influential among these is Paul A. Feyerabend (1975). Starting with Quine's holism of meaning and the notion that empirical observation meets hypotheses at the level of entire holistic theories, Feyerabend developed a "methodological anarchy", which stated that there was no cognitive basis to choose between theories. In the hands of post-modernists, Quine's holism of meaning becomes the claim that the world external to scientific theory is itself a construction without existence independent of scientists. That is, science is seen as the dominant beliefs system of our culture rather than the source of objective belief (Hollis, 1995).

The epistemic relativist position has a tradition in the social sciences dating back to Weber's concept of *verstehen*. It was made popular in the social sciences in the 1960s by Hans-Georg Gadamer's hermeneutics (1976). Hermeneutics traditionally was a theory of the interpretation of meaning principally concerned with biblical exegesis. Gadamer's project was to develop a more generalised philosophical hermeneutics which can give an account of the conditions of all interpretation. To do so, he adopted a form of hermeneutics derived from Heidegger's *Being and Time* (1927) and Wittgenstein's conception of language games, in which understanding is seen as governed by three dimensions: the author, the text itself, and the interpreter (Boylan and O'Gorman, 1995). Rather than constructing the mind of the author, as previous, narrower versions of hermeneutics had espoused[16], Gadamer conceived of hermeneutic understanding as a question of the mediation or fusion of public horizons. That is, interpreters bring their own cultural context to the processes of understanding and fuse these with those of the text, creating imaginative, original interpretation.

Applying this conception of understanding, Gadamer considered the social sciences to stand in a peculiarly tense relationship to their object, a relation that requires hermeneutic reflection (Outhwaite, 1987). He notes that the social sciences do not so much aim to understand as incorporate linguistic truisms in their attempt to capture the

[16] A hermeneutic tradition commonly associated with Schleiermacher (1959) and Dilthey (1967).

real structure of society. Concerned with our encounter with a participant in a cultural tradition other than our own, Gadamer suggested the process of coming to an 'understanding' in the social sciences is a 'fusion' of one's own 'horizon' of meanings with that of the other person/culture. In this post-modern hermeneutic perspective, each culture creates and renovates its own understanding. Knowledge is relative. Truth emerges in dialogic encounters between specific elements, each of which has a horizon that contributes to its formation (Gadamer, 1975). We are caught in a hermeneutic circle: we grasp the world in terms of its components, but we can grasp things within the world only in terms of our prior mastery of the web of significance of the world as a whole. Moreover, as 'insiders' initiated into the practices of a historical culture, the world is already intelligible to us. As a result, the questions of traditional epistemology are topics for specialised 'regional' inquiries.

Another contemporary manifestation of relativist epistemology within the social sciences is the project of genealogy, especially the work of Michel Foucault[17]. Foucault attempts to answer the question: If knowledge is the product of historically-specific, contingent modes of inquiry, what effect has this had on our knowledges? In order to answer this, he developed a 'genealogical' method to describe what he called 'power/knowledge'. He formed the dyad power/knowledge to indicate that each is always implicated in the other, in the sense that the negotiations and strategic movements of power create the open spaces where discourses can emerge, but that power is exercised through knowledge (Dancy and Sosa, 2000). Genealogy, an approach borrowed from Nietzsche, is the examination of the relationship between power and specific knowledges.

Foucault's project was political in that it was motivated towards dislodging our dogmatic attachments to present categories and concepts, by revealing their genesis in the mire of contingent conceptual transformations, historical conflict, and political struggle. Given such contingencies, the operations of power are necessary to explain the emergences of all knowledge systems. Foucault's primary influence on epistemology

[17] Both Gadamer's hermeneutics and Foucault's genealogy are part of the broader 'continental epistemeology', which originated from the work of Hegel, is reflected in the work of Marx and Nietzsche, and developed in the twentieth century into five major orientations to epistemology: phenomenology, critical theory, hermeneutics, post-structuralism, and feminism. For a brief description of the development

will most likely be in this introduction of power as a salient ingredient in understanding knowledge.

Corresponding with the relativist conception of understanding found in Gadamer and Foucault, Peter Winch (1958) asserts that understanding social phenomena is much more like learning a language than giving an explanation of the workings of a machine. He argues that the judgement of a system of thought can only be performed from the perspective of 'immanent criteria'. That is, they can only be judged from within the context of their own systems of thought, as rationality is itself culturally relative, and there is no understanding other cultures. In support of this relativism, Winch presents evidence of the magic and spirit beliefs of the Azande, which he concludes, while strange to Western eyes, are "perfectly sensible" within their system of belief.

Such cultural relativism has, however, raised questions for social scientists. Perhaps most importantly, if rationality is relative, how can the apparent instances of intra-cultural communication and understanding be explained? Winch found doubts in the conclusion of his own epistemic relativism that we could never come to understand another culture, which seemed to contradict evidence of our learning other languages or coming to understand other cultures (Potter, 2000). These concerns caused Winch (1958) to argue that the inherently meaningful nature of universals in the human condition provided the basis for intra-cultural understanding. He identified four categories that define such universal human condition: the fact that all societies had to come to terms with birth, marriage (some social mechanism for reproduction), and death, and must interact with nature in order to provide the necessities of life. In support of this argument, Winch describes the Azande as interacting with the natural world in what was recognisable as a practical way, despite their "strange" belief system. For instance, crops were still planted at what, from the Western agro-biological perspective, would be considered the right time of year. That is, evidently there is some link between their belief system and ours with regards aspects of interaction with the natural world. We come to similar conclusions, but couch them within the terms of different beliefs systems: meteorology and agro-biology versus the supernatural.

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of 'continental epistemology', and the relationship between its different branches see Dancy and Sosa,

3.8 The middle ground: challenging cultural relativism.

> There is an uninvited guest which has been seated [...] beside us and which is the human mind.
>
> Levi-Strauss, C. (1953: 4, quoted in Brown, 1991).

Levi-Strauss made this statement in the context of concerns over the existence of commonalities in cultural phenomena and its apparent undermining of the cultural relativism underlying mainstream anthropology. As Donald Brown concludes a summary of literature from mainstream anthropology:

> What we know about universals places clear limits on the cultural relativism that anthropologists have developed and disseminated widely. Furthermore, what we know about universals suggests the need to revise a conception of human nature that anthropologists have helped to shape (Brown, 1991: vii).

3.8.1 Challenging the foundational texts of cultural determinism.

The foundational texts upon which cultural relativism in anthropology is generally considered to rest have, to some extent, since been refuted, and the veracity of cultural relativism consequently called into doubt. Donald Brown (1991) identifies four examples of such texts:

(a) In *Coming of Age in Samoa* (1928), Margaret Mead argued that adolescence among Samoans was not the stress that it was considered in the West, and, hence, that Western conceptions of adolescence were strictly cultural. Mead's book, published in the midst of a debate over the relative importance of biological and cultural determinants of behaviour, was hailed as a definitive demonstration of the importance of culture. However, Derek Freeman (1983) in his *Margaret Mead and Samoa: The Making and Unmaking of an*

2000).

Anthropological Myth shows that adolescence was just as stressful in Samoa as in the West and that Samoa was not as different from Western societies as Mead had led us to believe.

(b) Bronislaw Malinowski in his *Sex and Repression in Savage Society* (1927) suggested that the Oedipus complex was peculiar to "patriarchal" societies. The matriarchal Trobriand Islanders, among whom Malinowski conducted his research, developed, he argued, a different complex – one in which a boy felt hostility towards his mother's brother rather than his father. Again this purported to show that what Westerns considered natural or universal wasn't. Yet Melford Spiro's *Oedipus in the Trobriands* (1982), reanalysing Malinowski's own data, argues persuasively that the Trobrianders did have an Oedipus complex.

(c) Benjamin Lee Whorf argued that the Hopi had no sense of time or that their sense of time was very different from ours (Carroll, 1956). The problem of Hopi time is intimately linked to what has become known as the Sapir-Whorf hypothesis: that categories of language shape perceptions of the world, and that, insofar as different societies have their own languages, the worlds in which societies live are distinct worlds. Therefore, since the Hopi language, Whorf said, included no conception of time, the Hopi perceive the world in a very different way than we do. This represented an extreme form of cultural relativism. However, Malotki (1983) has since documented the richness of Hopi conceptions of time and their essential similarities to ours. Indeed, Whorf himself argued that "my own studies suggest, to me, that language, for all its kingly role, is in some sense a superficial embroidery upon deeper processes of consciousness which are necessary before any communication, signalling, or symbolism whatsoever can occur" (Carroll, 1956: 239).

(d) Another of Mead's anthropological classics was her *Sex and Temperament in Three Primitive Societies* (1935), in which she argued that the Tchambuli, a group of people from New Guinea, had male and female temperaments that were the opposite of what we in the West consider normal. However, Deborah Gewertz (1981) restudied the Tchambuli and found that Mead had

misinterpreted the situation among them; "thus effectively smashing another of the icons of relativism" (Brown, 1991: 10).

Moreover, not only have the foundational texts of cultural determinism been challenged, but the work of the more prominent advocates of the relativist approach is littered with doubt regarding the non-existence of universals.

3.8.2 The acknowledgement of universals.

> We tend to be blasé about our mental lives. We open our eyes and familiar articles present themselves; we will our limbs to move, and objects and bodies float into place; we awaken from a dream and return to a comfortably predictable world; Cupid draws back his bow, and lets the arrow fly. But think what it takes for a hunk of matter to accomplish these improbable outcomes, and you begin to see the illusion [of relativism].
>
> Steven Pinker (1997: 18-19).

Brown (1991) records a long history of ambiguity within mainstream anthropology with regard the existence of universals. He notes that, in a history of anthropological thought that has fluctuated in its support of the role of universals in the human condition, there has always lingered a doubt regarding the complete exclusion of universals at the heart of mainstream anthropology.

Franz Boas, the "single most important figure in American anthropology", transformed the concept of culture in ways that were to have important implications for the study of universals. Boas saw cultures as plural; each culture should be judged on its own terms, rather than from our ethnocentric perspective (Brown, 1991), a move that would establish the relativism of American anthropology and would inform the work of the likes of Kroeber, Benedict and Mead. However, this move away from generalisations and towards cultural relativism, and the detailed studies of particular cultures, did not cause Boas to dismiss universals. He utilised the conceptual unity of mankind to assert that this unity produced universals. In his *The Mind of Primitive Man* (1963), he noted:

> The appalling monotony of the fundamental ideas of mankind all over the globe. [...] We find not only emotion, intellect and will power of man alike everywhere, but also similarities in thought and action among the most diverse peoples. These similarities are [...] detailed, [...] far reaching, [...] vast, [...] and related to many subjects (1963: 154).

A. L. Kroeber, one of Boas's students, is generally credited with perfecting the argument that culture is a level of phenomena that cannot be reduced to lower levels. In particular one cannot explain culture traits in psychological or biological terms. Kroeber's 1915 paper, *Eighteen Professions*, draws a sharp boundary between biological science and cultural anthropology. This approach was emphasised in his 1917 paper, *The Superorganic*, which was an anti-reductionist proclamation of the freedom from the influence of biological explanation of social phenomena.

However, despite Kroeber's anti-reductionist contributions, he was in fact not such an extremist. In the same *Eighteen Professions*, Kroeber said that the relation between biological and social factors was a special province of anthropological study. Indeed, his later papers (1949, 1960) were decidedly reductionist, stressing that there is no alternative to considering flesh-and-blood human beings as the efficient causes of culture, while concluding that culture had only a "degree of autonomy" from the organic realm on which it rested. In one of his earliest papers, he spoke of the "tendencies" at the root of all anthropological phenomena, which are "inherent in the mind" (1901).

In 1935 Kroeber stated his views more clearly. His view of the current methods in anthropology involved putting the "protean X of the mind to the rear," but this did "not abolish the X":

> The X, or its relation to the Y of culture, does remain our ultimate problem. This fact [...] we tend to forget; and, probably more than we know, we are bringing up our students and successors in an ultra-behaviourist attitude [...]. [I]f there is a human mind, it has a structure and constitution, and these must enter into its phenomenal products [...]. [I]t is well to remember that we are making a deliberate omission for practical purposes for the time being; and above all we have not yet

proved that X equals 0 (Kroeber, 1935: 565 – 566; quoted in Brown, 1991).

While American anthropology established for itself a relativistic tradition, not all anthropologists were swept along with this tide. Radcliffe-Brown and Bronislaw Malinowski, the co-founders of British social anthropology, formulated a framework for analysing culture that used as its fixed points of reference certain universal givens of human life. While he rejected the universality of the Oedipus complex (s. 3.12.1), Malinowski also suggested that innate dispositions shape human behaviour in many ways (Brown, 1991). For instance, while he denied the universality of the Oedipus complex, he did so by affirming the universality of family complexes in general.

Malinowski's *A scientific theory of culture* (1960) presented a list of universal institutional types, each the response to a universal principle/problem of humanity. He stated that "any theory of culture has to start with the organic needs of man" (1960: 72). These needs provide the framework for a scientific theory of culture. In addition to basic needs (metabolism, reproduction, bodily comforts, safety, movement, growth, and health), Malinowski also posited "imperative needs" or "derived needs". They include the production and reproduction of the means of production (economics), the codification and regulation of human behaviour (social control), the renewal of the human material of each institution (education), and an organisation of authority and power (political organisation).

The analysis of culture, according to Malinowski, consisted of showing the way the institutions peculiar to each society discharged the function of meeting each of the basic and derived needs (Brown, 1991). That is, from Malinowski we get not so much a list of universals as a list of universal conditions for the existence of society and culture. However, a further aspect of Malinowski's universalism is the notion that human impulses are everywhere much the same and that culture is rooted in "innate or natural tendencies of the human mind". However this thought is not followed up in his work.

The list of anthropologists acknowledging the existence of universals and the problems they cause for cultural relativism can be extended to include Murdock (1945), Kluckhohn (1953), Hallowell (1963), Berlin and Kay (1969), Goodenough (1970),

Tiger and Fox (1971), Rohner (1975), and Bloch (1977). More recently, work within the biological sciences, including Hamilton (1964), Maynard Smith (1964), Trivers (1971, 1972), and Wilson (1975), has also inspired consideration of the role of human nature in culture. However, the argument already present should be sufficient as evidence of the concern over the veracity of the cultural relativist program.

3.8.3 The call for the 'middle ground'.

While the above arguments would point towards the rejection of the cultural relativist perspective, this in no way implies the veracity of a biological determinist perspective. Indeed, while rejecting Mead's *Coming of Age in Samoa*, Freeman (1983) suggests that human behaviour is a combination of biology and culture, and that both elements require consideration in understanding human behaviour. Such a call for a 'middle ground' – 'interactionism' – is increasingly mirrored on both the biological and cultural sides of the debate.

The success of cultural anthropology in the first decades of the last century created a dilemma: "universals existed and were likely to rest upon psychobiological factors, yet human behaviour was fundamentally shaped by culture, and culture was an autonomous phenomenal realm that was not determined by psychobiological factors" (Brown, 1991: 62). From this perspective, cultural universals are highly improbable. That is, unless they occur through sheer coincidence they could only result from having existed in the very infancy of humanity and thus have descended by uninterrupted cultural transmission to all its branches. Any other explanation would involve something other than culture causing culture and hence would deny its autonomy. The identification of cultural universals, therefore caused problems for anthropology. As Brown (1991: 64) tells us:

> A cultural universal confounds the traits of the cultural and the biological: it is neither fish nor fowl... Lying in anthropological limbo ... universals were not literally or consciously tabooed, but they weren't embraced with much enthusiasm either.

Pinker (1997: 57) argues that the "dichotomy between 'in nature' and 'socially constructed' shows a poverty of imagination, because it omits a third alternative: that some categories are products of a complex mind designed to mesh with what is in nature". The same dichotomy forms the subject matter of C. P. Snow's *The Two Cultures and the Scientific Revolution* (1959), and evoked his comment: "this polarisation is sheer loss to us all" (quoted in Wilson, 1998: 138). Also in support of a middle ground, Stephen J. Gould (1991) reminds us that Goethe realised that some dichotomies must interpenetrate, and do not struggle to death on one side, because each of their opposite poles captures an essential property of any intelligible world. However, the potential for the development of a coherent 'middle ground' is limited by the incompatible philosophical frameworks upon which the positivist and hermeneutic approaches are built. It would therefore seem that, before a middle ground can be reached, the dichotomous epistemology that stands in its way must first be overcome.

3.9 Saving science: overcoming subjectivism..

3.9.1 Lakatos's methodology of scientific research programmes.

Although thinking within the philosophy of science has become increasingly sceptical concerning the possibility of objective truth within science, the possibility has not been abandoned altogether. Perhaps the most prominent figure in the defence of science against the relativism of knowledge is Imre Lakatos. Lakatos (1970) argued that the philosophy of science should be concerned with rules for *modifying* and *comparing* theories, not rules for assessing theories. That is, philosophers should be less concerned with the question "Is theory T well or poorly supported by the data?" than with the questions "Is this version of theory T an improvement over the last?" and "Are the proponents of theory T making as much progress improving it as are the proponents of alternative theories?" (Hausman, 1994).

In his *Falsification and the Methodology of Scientific Research Programmes* (1970), Lakatos attempts to show that rejection of the ideals of proven knowledge (s. 3.3 – 3.6) need not force one to accept either Kuhnian social psychology or scepticism. Instead, Lakatos argues that the Popperian falsificationist perspective remains open. Classifying Popper's work as 'sophisticated falsificationism', Lakatos's positive contribution is to

complete the programme begun by Popper by proposing a methodology of scientific research programs that enables a rational reconstruction of methodology and of the growth of scientific knowledge (Caldwell, 1994a).

Lakatos's 'Sophisticated Methodological Falsificationism' recognises that theories do not exist in isolation, but as part of a larger and dynamic system. Thus, it does not make sense to talk of a theory. Instead the point of reference of methodological discussion should be a series of theories. The role of the methodologist is to evaluate how research traditions change through time in order to discover whether its modification is progressive or degenerative.

Lakatos argues that science is and should be dominated by "scientific research programmes" – series of related theories that possesses a certain "hard core, " which must be preserved through all modifications of particular theories. Moreover, the research programme contains rules and suggestions ("a positive heuristic") that directs scientists in making modifications. Thus, argued Lakatos, competing research programmes should be compared by examining their overall progressiveness. In turn, Lakatos described a progressive modification of a theory as being one that is not *ad hoc* (Hausman, 1994):

(a) A modification to a theory may have no new testable implications at all. Modifications that are not *ad hoc* in this sense are "theoretically progressive".
(b) A modification may present testable implications, but these implications are not confirmed. That is, modifications are not "empirically progressive".
(c) Modifications of theories must be made in the "right" way. That is, they must represent some element of continuity, rather than being arbitrary.

Any such evaluation of the progressiveness of a research programme is a long-range affair: there is no instant rationality by which to evaluate the success or failure of a research programme (Caldwell, 1994a). The most important implication of Lakatos's work is that theory evaluation cannot be instantaneous, since a whole system of theories in its historical evolution must be evaluated. However, despite this long term approach, Lakatos believes that his methodology of scientific research programmes retains a

prescriptive role for methodology and avoids the subjective quagmire of the work of Kuhn or Feyerabend. That is,

> Lakatos provided an alluring compromise which provided both a prescriptive methodology that simultaneously provided methodological criteria of evaluation, while allowing for the testing of the methodology against the history of the discipline (Boylan and O'Gorman, 1995: 24).

There remain problems with Lakatos's defence of falsificationism. However, rather than concerning ourselves with these here, we will take Lakatos's lead and consider further the possibility of objectivity in knowledge[18].

3.9.2 The search for necessity in knowledge.

In response to relativism's attempted undermining of science's claim to objectivity, Rosenberg (2000a: 165) points out that neither Kuhn nor Quine[19] intended to cast science down from such claims, arguing that:

> For all Kuhn's insights into the history of science, something has gone seriously wrong in the development of the social studies of science since his time. [...] Much of the motivation for the attempt to understand natural science stems from an appreciation of its predictive power and explanatory depth, from the desire to identify its methodological secrets so that they can be applied elsewhere [...] with the same theoretical insights and technological results. When an inquiry so motivated concludes that science is just another religion, just one of a wide variety of ways of looking at the world, none of which can claim greater objectivity than the others, then sometime, somewhere, we have taken a wrong turn in our inquiry.

On Kuhn's view, mature science is the best example of objective knowledge we have. He argued that to understand what objective knowledge consists in we should not lay

[18] For a discussion of the problems with Lakatos's methodology see Caldwell (1994a), Hausman (1994), and Boylan and O'Gorman (1995).
[19] See section 5.2 for a review of Quine's defence of the epistemic status of science.

down formal criteria *a priori*, but rather, we should examine the methodology of physical science (Dancy and Sosa, 2000).

The remainder of this part of the thesis will be dedicated to elaborating the possibility of overcoming scepticism through demonstrating how changes in theory that new data provoke is not of the arbitrary nature described by the epistemic relativists. That is, attempts to avoid the 'slippery slope' from theory-dependence into relativism will be made through the discovery and positing of some elements of necessity. Necessity in belief concerning the environment is identified as the condition for the validity of any particular belief system and a requirement for the argument that communities' belief systems ensure the appropriate use of resources. Such necessity is a sufficient condition for epistemic objectivity – for a judgement to be objective it must possess a content that may be presupposed to be valid for all men (s. 3.2). It is also the issues that has caused problems for cultural relativism in anthropology (s. 3.8): the existence of human universals.

Rosenberg (2000a) tells us that to do this, the philosopher must either become a historian and extract from the historical record the principles of reasoning, inference and argument that participants in paradigm shifts and theory changes actually employ, or turn to the reasoning processes characteristic of humans and the adaptive significance of reasoning for our ability to survive and thrive. It is the second of these that will form the approach adopted in the remainder of this part of the thesis in order to investigate the possibility of necessity in conception of the environment. The next chapter begins this search within the field of environmental psychology.

4. Environmental preferences and Piaget's theory of knowledge: Searching for necessity in environmental preference in northern Thailand.

4.1 Introduction

The possibility of necessity in environmental valuation, and thus objectivity in environmental citizen values, is identified in the form of evolved environmental preferences within the environmental psychology literature (s. 4.2.1). In turn, this is recognised as corresponding with the modularity thesis of cognitive development (s. 4.2.2), a framework that has been separately related in the anthropology literature to the notion that there exist commonalities in biological classification (s. 4.2.3). However, the veracity of the modularity thesis is doubted in general, as well as in explanation of biological classification (s. 4.3.1). Moreover, other contributions to the environmental psychology literature reject the notion that environmental preferences are the product of evolution, arguing that local, cultural factors are more important in their explanation (s. 4.3.2).

The organisation of the explanation of environmental preference according to the culture-nature dichotomy has led to calls for an interactionist perspective incorporating both universal and local aspects (s. 4.4). Failing to find any such framework within the environmental psychology literature, Piaget's 'genetic epistemology' is identified as providing the potential for an interactionist explanation of environmental preference (s. 4.5). Moreover, Piaget's interactionist perspective maintains the possibility of necessity in the development of concepts. A survey is then designed to elicit people's landscape preference through the comparison and ranking of landscape photographs in order to analyse the structure of environmental preference (s. 4.6).

Although the result of this survey would suggest that an interactionist perspective, such as that represented by the epistemological position of Piaget, provides a better explanation of environmental preference than the 'culture' or 'nature' approaches on their own, the data collected fails to show that Piaget's epistemological framework is the only explanation of preference. Specifically, the learning of ecological universals is

proposed as an alternative explanation. Although this explanation undermines the explanation of environmental preferences based on Piaget's framework, the possibility of necessity in the development of environmental preference still remains.

While the analysis performed is used to comment upon the structure of environmental preference, it is important to point out that such preferences are only investigated at the level of cognitive/information processing. That is, the role of affective aspects of environmental preference thought to result through the development of, for example, a sense of place are ignored in the analysis undertaken. This approach is facilitated through the separation of the person and the landscape being evaluated through the use of photographs, as well as ensuring the landscape photographs used did not represent environments directly familiar to the participants. Hence, the discussion undertaken here is not intended to represent or explain environmental preference in its entirety, but to highlight an aspect of environmental preference with which to investigate the possibility of necessity in valuation.

4.2 The possibility of innate environmental preferences.

4.2.1 Biophilia: innate environmental preferences.

One potential source of natural necessity identified within the environmental valuation literature is the notion that environmental preferences are innate. The environmental psychology literature on the source of environmental preference is dominated by what is referred to as the culture-nature dichotomy. On one side of the debate reside those who support the notion that environmental preferences are influenced by evolved tendencies to prefer certain landscape forms; a phenomenon E. O. Wilson has dubbed *biophilia* (1984). What Wilson presents as intuitive with the support of circumstantial evidence in his *Biophilia* (1984) has also been the subject of more rigorous scientific investigation of environmental aesthetics as affective, evolved, functional based ways of responding to the informational patterns of our environment.

Research on the biological mode of *biophilia* could be considered to have begun with Appleton's (1975) *The Experience of Landscape*. Appleton's basic thesis is that a landscape that appears to facilitate survival is one that will also provide aesthetic

satisfaction. The basic proposition is that certain rewards or advantages associated with natural settings during evolution were so critical for survival as to favour the selection of individuals with a disposition to acquire and then retain various adaptive positive responses to unthreatening natural configurations and elements.

Support for explaining landscape preferences as a function of evolved values suggests that biology may play a role in at least three positive, *biophilic* responses to unthreatening natural landscapes: "liking/approach" responses; restoration or stress recovery responses; and enhanced high-order cognitive functioning when a person is engaged in a non-urgent task (Ulrich, 1993). Over the last twenty years, a considerable research literature relating to the first type of positive responsiveness, "liking/approach", has been amassed[20], and it is this response that will form the basis for the following discussion of universal factors in environmental preference determination.

While a number of survival problems have been considered in the application of evolutionary principles to the determination of "liking/approach" responses, including way-finding and habitat selection (Appleton, 1992, 1996; Kaplan, 1992; Orians and Heerwagen, 1992), each approach focuses on the information processing abilities of the human mind in surviving an environment, and the characteristics of the landscape identified as being significant in preference determination have remained remarkably consistent between the different approaches.

The rationale behind the application of evolutionary principles to explaining environmental preferences is that humans, as information seeking animals, were much more likely to survive in an environment which provided the necessary resources, and accessible, comprehensible information (Barkow et al, 1992; Kaplan, 1992; Orians and Heerwagen, 1992). Natural selection would, then, tend to favour individuals who preferred landscapes which provided the information necessary to survival.

[20] For reviews or collections of articles see Zube, Brush and Fabos 1975; Daniel and Vining, 1983; Ulrich, 1983, 1986; Smardon, 1988; Kaplan and Kaplan, 1989; Nasar, 1988; Ribe, 1989.

The landscape characteristics which receive most consistent support in the evolution of landscape preference are the complexity[21], coherence[22], legibility[23] and mystery[24] of the landscape, and the existence of water within the landscape. Although the proposed combination of these factors in the determination of preference varies with author and between studies[25], their presence remains consistently significant.

4.2.2 Domain specificity and innate cognitive functions.

Perhaps the best known manifestation of the notion that there exist innate cognitive functions currently available within cognitive science is the modularity or domain-specificity thesis. Derived from the argument advanced by Fodor's *The Modularity of Mind* (1983), and reflected in Noam Chomsky's (1988) influential theory of language, broadly speaking a module is a relatively autonomous component of the mind, one which, while it interacts with, receives input from, and sends output to other cognitive processes or structures, performs its own internal information processing unperturbed by external systems (Garfield, 1995). Fodor (1983) distinguishes between 'input systems', which are domain-specific modules, operating independently of other modules, and with a fixed neural architecture and a fixed timetable of development; and 'central systems', which are domain-general and global, specifying no limit on the form or timetable of development. The first are reflexes, the second thoughts. The innately determined nature of these reflexes provides the possibility of necessity in knowledge.

Just as it is our problem here to discover necessity in understanding, the modular approach can be seen as motivated as a response to the problem of attending to 'inputs' in a way that that supports the development of concepts shared among people

[21] Complexity is an assessment of the scene in terms of its potential for exploration, involving the richness or number of different objects in the scene. A scene low in variability is unlikely to provide much to look at. and not likely to be worth exploration.
[22] Coherence refers to the ease which one can grasp/understand the organisation of the scene. Repeating elements provide rapid assessment of how the scene hangs together. Fewer different regions, relatively uniform within themselves and clearly different from one another also enhance coherence.
[23] Legibility is an assessment of how well one can find one's way in the depicted scene, the inference that one will be able to maintain one's orientation. A scene that is open and offers visual access, but with distinct and varied objects to provide landmarks is high in legibility.
[24] Mystery represents the promise of more information. The inference that one could learn more about the scene if one could explore its third dimension. This is enhanced by characteristics such as screening in the foreground, or a winding path, features that suggest the presence of more information while at the same time partially obscuring it.
[25] Compare Kaplan [1992] with Orians and Heerwagen [1992] for an appreciation of such variation.

(Hirschfeld and Gelman, 1994; Keil, 1994; Sperber, 1995). It is argued that experience alone is inadequate, as many of the critical concepts children need to learn never appear, and are open to many alternative construals. In response to this puzzle, Keil (1995: 241) tells us that "there must [...] be belief-like structures that narrow down an indefinitely large number of features and feature relations to a manageable number". These represent restrictions on the kinds of knowledge structures that the learner typically uses. They represent the framework upon which developing knowledge depends and grows: natural necessities. Learning is thus simplified, as the learner need not consider every possible reading of the input.

Amongst those who accept the application of modules to the development of conceptions of nature, there seems to be general agreement as to the manner in which such modules relate inputs to knowledge output. That is, from the start, children are endowed with a collection of independent subsystems designed to perform circumscribed tasks (Hirschfeld and Gelman, 1994), each of which is endowed with causal-explanatory biases constraining concept growth (Keil, 1995).

4.2.3 Concepts of nature as the product of modular cognitive faculties.

Though still an issue of some debate, in support of the application of modularity to the understanding of conceptions of nature there is evidence within the anthropological literature of cross-cultural commonalities in the conception of nature in the form of empirical regularities within the classification of biological kinds. Indeed, such regularities caused Atran (1990: 265) to conclude that "in practice, the field biologist who is initially unfamiliar with a terrain can usually rely on local folk to provide a fairly accurate first approximation of the scientific distribution of the local flora and fauna," as the groupings used by people to classify animals and plants are obvious to all cultural groups.

Berlin (1972, 1978) and his associates (Berlin Breedlove and Raven 1966, 1973, 1974) show that in spite of significant variation in the plants and animals that any local population encounters, and in spite of the fact that many of those plants and animals lack any cultural salience for any given local population, there is striking consistency in the way humans everywhere classify the world of living things. The basic principles of

classification of biological kinds are extremely stable over significant differences in learning environment and exposure.

Atran (1990, 1995) suggests that all cultures divide the living world into two kingdoms (animal and plant), that each of these is taxonomically subdivided into major life forms (e.g. fish, bird, mammal), and that these are further subdivided into (sometimes unnamed) subcategories (e.g. ungulates, rodents). Finally, the taxonomy bottoms out in all cultures at the level of primary taxa (species/genus e.g. mouse, dog, wolf, deer). Atran also claims that humans presume each primary taxon to uniquely possess an inherent physical nature or underlying essence, which determines the kind's teleological growth, its characteristics behaviour, morphology and ecological proclivity.

Quoting studies of the Delaware Indians, the Tzoltzil of Mexico, the Brou of Cambodia, the Rangi of Tanzania, the ancient Hebrews, Greeks and Romans, Atran (1985) argues that the first botanical life form to appear in any language is "tree," usually defined as a plant taller than a human adult and usually ligneous, which in turn implies the recognition of another life form, namely "herb," or a plant usually smaller than a human adult and herbaceous. That is, "size" and "woodiness" are a universal distinction. Equally, the combination of the criteria of size and woodiness may lead to a further partitioning of the plant world into four life forms: tall and woody trees, woody bushes or ligneous shrubs of small or medium height, small or medium undershrubs whose stems are ligneous but whose branching patterns are herbaceous, and small, herbaceous herbs and grasses. It would seem that folk-botanical life forms are recognised on the basis of numerous gross morphological characters. "In brief, virtually all humans, at all times and in all places, categorise the animals and plants that they readily perceive in a very similar way" (Atran, 1995: 211).

Atran (1990, 1995) and Sperber (1994) not only identify universal biological classificatory systems but also interpret them as reflecting competencies implicating numerous perceptual modalities. That is, folk biology is a core domain of human cognition, innately determined, and developed without exploratory theory building. Thus, biological classification is pre-theoretical and constraining, and in turn makes possible explicit biological theory. "It is suggested that an innate living-kind module privileges as input all the perceptual information pertaining to the identification of

organisms as those things that can be readily assigned a taxonomic description" (Atran, 1995: 208). That is, a natural necessity in knowledge about the environment can be located in the innate modules of the mind.

The idea is that innate principles lead children to believe that the visible morpho-typical patterns of each readily identifiable biological species are causally produced by an underlying essence. The nature of this essence is initially unknown, but presumed. The child must discover how essences govern the teleological relations between visible parts, and how they causally link initially ill-perceived inheritable parts to morpho-typical parts through irreversible patterns of growth. Virtually all people, in all cultures, cannot help but follow through this innately driven 'research program' (Atran, 1995).

4.3 Local influences on landscape preferences.

4.3.1 Environmental conceptions and values as candidates for domain-specificity?

There remains debate as to exactly what mental functions represent candidates for modularity. Typically, input and output functions, such as perception and motor control, are considered candidates for modularity (Garfield, 1995). However, it is less plausible that central processes are subserved by modules (Garfield, 1995). For one thing, such processes demand access to a large amount of knowledge. For another, it would be bizarre to suggest that evolution would issue into existence special neural structures devoted to these tasks. Critics of modularity argue that the processes to which modularists refer are in fact instances of more general cognitive processes that are recruited across domains (Garfield, 1995).

This line of argument gains support from the observation that skill acquisition, for instance chess, results in performance having exactly the characteristics Fodor (1983) ascribes to modules: speed[26], mandatory operation[27], information encapsulation[28], and

[26] Module process are very fast, something that it is thought derives partly from the manditoriness of modules – the fact that there is no need to decide whether to bring a modular process into play eliminates planning time (Garfield, 1995).
[27] We don't have a choice in whether we bring domain-specific cognitive mechanisms to bear. For instance, whether we bring scene recognition mechanisms to bear on visual data (Garfield, 1995).
[28] Having no access to information from elsewhere in the cognitive system. All the information available to a module comes directly from its own subsystems or from their dedicated input devices.

perhaps even localisation[29]. Critics also point out that central processes seem to be mandatory; while we have a great deal of voluntary control over what we think about, we often find that thinking is forced upon us; and that we have a lack of introspective awareness of even our central cognitive processes (Garfield, 1995).

Evidence of the modularity of biological classification is also problematic. Carey (1995) suggests the hypothesis that folk biology has an innate basis suffers from the following problems: those aspects of folk biology that emerge early in childhood are most probably not domain-specific; and those aspects of folk biology that are domain-specific are probably not innate, nor are they theory neutral. While most theorists acknowledge the need for constraints on learning of some kind (Hirschfeld and Gelman, 1994), disagreement remains as to the importance and source of these constraints. Debate remains on issues such as whether constraints are innate or acquired, and internal or external to the learner (Hirschfeld and Gelman, 1994).

Equally, while there is some support for the notion that apparently associative concepts have cores of explanatory beliefs underlying them (Keil, 1994), these are open to alternative interpretation. Indeed, theory-building capacities applied to a world that provides massive consistent evidence across cultures, or domain-general concept-formation capabilities could well provide similar results (Carey, 1995). That is, empirical regularities have an alternative interpretation: "that a close correspondence between commonsense and science reflected regularities in the world external to cognition, rather than indicating a set of shared cognitive dispositions" (Hirschfeld and Gelman, 1994: 26).

Moreover, while studies of the construal of biological kinds argue against the notion that young children blindly follow tabulation of feature frequency and correlations (Keil, 1989; Gelman and Coley, 1991; Wellman and Gelman, 1988), they do not prove that domain-general tabulation procedures cannot work. There is still the possibility that the proposed innate dispositions are themselves learned through more general learning procedures. That is,

[29] Lack of access to other processes of intermediate representation. That is, the modules only interact with central processes at their proper interfaces. This would accord with naïve intuition and the lack of

> Modes of construal may be exploratory entities that are constantly trying to find resonances with aspects of real world structure. [That is], it may be part of their nature to be constantly seeking out new resonances with other sets of phenomena [...], as having a very different role in the growth of concepts. [...] It may be that these fundamental modes of construal are the only explanatory systems ever available to us and that we learn about new patterns by discovering which of these modes [...] best provide insight into a set of phenomena (Keil, 1994: 252).

The modular account of conceptual development presents us with a dilemma: for instance, knowing innately that there are, say, nouns still leaves the learner with the problem of determining what words are nouns (Karmiloff-Smith and Russell, 1995). A 'bootstrap' is needed from innate formal knowledge to particular knowledge: without first-hand experience of an object, how could one recruit an innate representation of the object?

4.3.2 Local influences on landscape preferences.

In support of the domain-general approach to cognitive development, on the culture side of the culture-nature dichotomy in explaining environmental preference dissatisfaction with the evolutionary approach suggests that the application of such results is limited to the population from which participants were selected and the specific landscapes presented, and that variations in culture, environment, sex, personality, age, occupation and race produce local variations in landscape aesthetics. Lyons (1983: 505) documents significant variations in the results of environmental preference studies that "suggest that the development of landscape preference is a cumulative process that reflects the action, through the life cycle, of socially differentiating attributes such as age, gender, place of residence, and environmental experience". Moreover, "each of these works marshals evidence that social and demographic factors act differentially on populations to produce a range of environmental tendencies" (Lyons, 1983: 489). Studies support a range of contextual elements that influence landscape preferences:

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introspective awareness of cognitive processes: such processes occur inside modules and our central

- Duncan (1973) found patterns of landscape taste that correlated with social class.
- Zube et al (1974) found that the factors that most consistently explained variation in preference were landscape exposure as a child, occupation, and place of residence.
- Hecht (1975) found patterns of landscape taste that correlated with social class.
- Daniel and Boster (1976) found evidence for preferences based on the subject's place of residence.
- Macia (1979) found significant preference differences between male and female university students.
- Miller and Rutz (1980) suggest that different adult preferences are due to increased content discrimination as a result of learned cultural values.
- Balling and Falk (1982) demonstrated different preference patterns for adults with varying occupations, as well as that preferences change with age.
- Zube et al (1984) report significant variations in environmental preference as a function of age.
- Greenbie (1992) documented how lifestyle and life experience influence landscape values and choices.
- Zuckerman et al (1993) report variations in preference with ethnicity and the sensation seeking personality trait.

An observation that supports the local influence on landscape preferences is that studies suggesting apparently universal aspects of human environmental preferences have tended to concentrate their research effort within Western countries, particularly North America and Europe (Lyons, 1983; Ulrich, 1993). While this is understandable, as it is in these locations that environmental concern can be observed most strongly, it has led to doubts as to the universality of the environmental values observed. To investigate this claim requires a study of environmental preference among individuals from societies other than the modern Western ones in which the landscape preference is typically studied. In response to such criticism, a study of the environmental preferences of the residents of northern Thailand will form the basis for this investigation.

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processes only have access to the outputs of modules (Garfield, 1995).

4.4 The call for an interactionist perspective.

The organisation of the debate concerning the nature of environmental preference according to the culture-nature dichotomy has been criticised as too simplistic. Commenting on this dichotomy, Bourassa (1990: 788) states that:

> Among those who have investigated the matter, there is a clear consensus that theory has been neglected in landscape or environmental aesthetics [...]. There has been vast amounts of research in the field, but that research has not been unified or informed by any comprehensive theory of landscape aesthetics. Instead, the various research efforts either are atheoretical or reflect fragmented and apparently incompatible theoretical foundations. The work that has been done on theory tends to focus exclusively on either biological or cultural bases for aesthetic behaviour, without any attempt to reconcile those apparently incompatible sets of explanations.

The call for an interactionist approach to the understanding of behaviour can be heard in a number of behavioural based disciplines. Brown (1991: 88), concludes a comprehensive review of the classic anthropological texts:

> A great many universals do require explanation, at least in part, in biological terms. Many seem to require explanation in "interactionist" frameworks – i.e. in terms of combinations of biological and cultural factors. If we want to understand universals in the context of particular societies, the necessity of the interactionist framework is all the greater.

Explanation of environmental preferences through an interactionist framework requires that the roles of innate and cultural factors, as well as their interaction be specified. Each side of the dichotomous culture-nature debate displays problems that enable the issues faced in constructing an interactionist perspective to be identified:

- The 'nature' approach can be seen as motivated in response to the problem of attending to 'inputs' in a way that supports the development of concepts shared

among people (Hirschfeld and Gelman, 1994; Keil, 1994; Sperber, 1995). It is argued that experience alone is inadequate, as many of the critical concepts children need to learn never appear, and are open to many alternative construals. The 'nature' argument that there exist innate concepts is thus used to narrow the possible readings of inputs and simplify learning. That is, learning by its nature presupposes the application of some concepts (Hundert, 1995).

- The 'nature' account of conceptual development presents us with a dilemma: for instance, knowing innately that there are, say, nouns still leaves the learner with the problem of determining what words are nouns (Karmiloff-Smith and Russell, 1995). A 'bootstrap' is needed from innate formal knowledge to particular knowledge: without first-hand experience of an object, how could one recruit an innate representation of the object?

Resolving these two problems presents the interactionist perspective with a challenge: to understand how the "learning" of concepts is consistent with the pre-requisite existence of concepts.

4.5 Piaget's stages theory of knowledge.

One such interactionist description is Piaget's stage theory (1929, 1932). Although Piaget's work is not without its critics, Piaget himself is extremely important in the history of thought in psychology and this work still holds some important epistemological lessons. While it is his theory of cognitive development in the context of child psychology for which Piaget is best known, he himself claims to be addressing epistemological issues, in particular genetic epistemology: "the study of the development processes that underlie the mental functions studied in general psychology" (Piaget and Inhelder, 1966: viii). It is to the elaboration of Piaget's genetic epistemology and its implications for the format of an interactionist perspective on environmental preference that this section is dedicated. The lack of any such interactionist perspective identified by the author in the environmental psychology literature requires that a starting point for the development of such a perspective be found. It is for this epistemological purpose that Piaget's work is selected. However, during the following discussion it should be kept in mind that Piaget's conclusions are far from universally accepted.

Piaget's answer to the interactionist question of how learning of concepts is consistent with the pre-requisite existence of concepts was to suggest that nature gives rise to instinctive behaviours (primitive schemas) that ensure our environment will be experienced, a notion that formed part of his "stage theory" of cognitive development (1952). Piaget believed that knowledge requires a prior cognitive framework, that one cannot know without prior categories of thought, and thus focused in his research on the development of this framework (Kitchener, 1986).

4.5.1 The stage theory of cognitive development.

Although there is some ambiguity as to what is actually meant by genetic epistemology and how it is to be distinguished from the related fields of evolutionary epistemology, developmental epistemology, and historical epistemology, it can perhaps best be described as concerning the notion that changing epistemic states abide by certain rational constraints, limiting the logical form any epistemic trajectory can take (Kitchener, 2000). Its concern is the theory of development, evolution, genesis or history of knowledge from less adequate to more advanced states, and it was with this concern in mind that Piaget posed his theory of cognitive development.

Piaget's stage theory of cognitive development, as its name suggests, states that concepts develop in stages, each of which builds upon the previous (Piaget, 1952). He found that two year olds apply concepts such as object, space, time and causation. However, when he turned to the investigation of the prevalence of these concepts in babies, he discovered that, in all likelihood, we come into the world with none of these concepts (Hundert, 1995). In order to explain such conceptual development, Piaget proposed a series of four stages, each with an underlying cognitive-logical structure, in which conceptual schema, such as space, time and object, develop from more primitive schema, such as sucking, grasping and seeing (Kitchener, 1986):

(i) The sensorimotor stage (0 – 2 years).

Purely action based sensorimotor schema (sucking, grasping, pulling, turning) progressively develop via repetition, differentiation, generalisation and integration

into simple habits, which in turn develop into complex, creative kinds of instrumental behaviour in similar or analogous circumstances. These actions are thus pure behavioural dispositions and practical concepts into which objects are assimilated. The child knows the world exclusively by means of its actions. As yet there are no internal ideas, abstract thought, or propositional logic.

This is the stage of egocentrism, in which the child cannot distinguish the self from the world because he/she does not yet have a sense of the self or the world. Overcoming egocentrism requires the child to become aware of him/herself as one "constructed" object among others, related to others in space and time. This process of decentration thus presupposes the development and construction of certain categories – object permanence, space, time, causality – and their elaboration into a framework of reality.

(ii) Preconcrete operational or intuitive stage (2 – 7 years).

This stage sees the development of the ability to represent or symbolise by means of initiation, play, signs, and symbols: what Piaget refers to as the semiotic function. The child is no longer limited to action, but can begin to symbolise and represent actions and thus to reason about them. This is a move towards the internal sphere of thought. However, the child is still largely egocentric, and its thought is limited to the external sphere of motor behaviour, and thus remains pre-logical.

The child's thinking is intuitive/preconceptual, relying exclusively on the immediate perceptual appearances of things. Thoughts are not supported by reasons, since the child trusts as valid his/her immediate perceptual experience. However, this is superior to motor intelligence, since it permits the representation of non-present situations and some reasoning about them.

(iii) Concrete operational stage (7 – 12 years).

The beginning of true logical operations of symbolic thought. The internal mental representations of the second stage now possess logical properties/operations: an

action which has been internalised, made reversible[30], and integrated into a larger holistic structure. The operations at this stage are only applicable to concrete, manipulable objects. Hence, the child is tied to content and has not yet attained the level of thinking characteristic of purely formal thought.

(iv) Formal operational stage (12 – 15 years).

Peak of cognitive development: reversibility pursued on purely a logical plane, and able to perform purely mental operations on non-concrete objects and hence to reason about them, to engage in abstract, formal, hypothetical reasoning about propositional objects.

Although the details of Piaget's timetable have been doubted by certain authors, for instance Spelke (1990), the basis of Piaget's theory still holds some important epistemological lessons. At each of the above stages, the child is equipped with a set of cognitive structures – schemata, concepts, and categories. Piaget describes the manner in which these structures develop between the stages using the notions of 'assimilation' and 'accommodation' (Kitchener, 1986):

- An object is assimilated into cognitive structures as the subject acts towards it in a certain way, just as the child who sucks its thumb assimilates it into a sucking schema. In acting towards an object, it is judged, interpreted, or brought under a certain category. Hence, assimilation is equivalent to a judgement: to assimilate a thumb to a sucking schema is to judge a thumb as something to be sucked.
- Accommodation is a process in which the epistemic subject and its structures are modified to match more closely the properties of the external object. Cognitive structures are brought into line with the external world.

Assimilation and accommodation should not be conceived as two separate processes working one after the other; instead they function reciprocally and simultaneously. Accommodation is the process of adjusting structures to the object as assimilated, and

[30] An operation is reversible when, starting from its result, a symmetrically corresponding operation can be found which will lead back to the data of the first operation without these having been altered in the process (Kitchener, 1986).

assimilation is the incorporation of an object into accommodated structures (Kitchener, 1986). If we had pure assimilation with no accommodation, we would have the epistemological counterpart of naïve idealism: pure assimilation would be pure fantasy, comprising only the creative role of the subject, and theories would be produced irrespective of facts. Conversely, if we had pure accommodation without assimilation, we would have the epistemological counterpart of naïve realism: the non-creative imitation of external objects or objective facts in which the subject would play no active role. Each of these extremes Piaget rejected.

Cognitive stages can be seen as being a state of 'equilibrium' with the surrounding world. Since there is evolution in these stages, there is an increase in equilibrium over the course of development. However, no epistemic subject is ever in perfect equilibrium with its environment. Kitchener (1986) describes Piaget's model of equilibrium as functionalist or pragmatist, in that cognitive activity begins only when a cognitive need/motive arises – a puzzle, question, contradiction, the need to defend oneself rationally or to pursue a cognitive goal. This need constitutes a state of disequilibrium, and when it is satisfied, equilibrium is restored, and the new equilibrium is more stable.

4.5.2 Piaget's theory of knowledge.

Piaget rejects empiricism as categorically wrong (Kitchener, 1986). He argues that empiricism is wrong in its claim that the mind passively acquires knowledge and that experience comes with a ready-made structure. According to Piaget's stages of cognitive development mediated through both assimilation and accommodation, whatever structure knowledge has is at least in part due to the subject's creative activity of constructing it. That is, observation is not free from conceptual elements, as empiricism would have us believe. However, Piaget does not deny the empirical method, arguing instead that empiricism has interpreted *empirical* and *experience* in the wrong manner: knowledge as the passive 'reading off'/recording of sense data, free from interpretation or judgement. Thus, Piaget is critical of the logical positivist claim that there are pure observational data, that there is a sharp distinction between theory and observation, positing that the knower is active in the process of knowing.

Kitchener (1986) goes on to argue that Piaget is, in a certain sense, a rationalist. The epistemological rationalism of Descartes and Leibniz introduced the notion of innate ideas to explain knowledge of the external world; *a priori* faculties that provide the general axioms upon which experience must be written. The notion of innate ideas led to the concept of a pre-established harmony between the subject and object. Knowledge is organised into a deductive system, in which all truths are derived from a relatively small number of axioms and definitions, whose truth is guaranteed by their self-evidence through the use of the faculty of intuition, which allows us to see that general axioms capture essential properties about the world (Curley, 2000). The problem with rationalism lies in its transcendence of the limits of observation by theoretical reflection, and then claiming that such reflection carries with it knowledge of reality. As Hollis (1995) expresses it, it is " spiders making cobwebs out of their own substance". The result is an immutable law of thought, whose necessity cannot be proved, as all proofs presuppose them, and presents an epistemological problem: how can we know the existence of such a theory of thoughts if it is hidden from our everyday ways of knowing experience? Piaget thought that this was inadequate, criticising the use of innate concepts to explain how thoughts are able to correspond with reality (Kitchener, 1986).

However, despite Piaget's rejection of the rationalist's nativism, which he described as "structure without genesis" it is suggested that in important aspects, he is clearly a rationalist (Kitchener, 1986). For instance, he believed that knowledge is organised and structured in a complex way, and that the source of this organisation lies in the epistemic subject. That is, assimilation is equivalent to the rationalist's judgement. The basic epistemological unit is a judgement involving rules, categories, schemas and principles. The difference between Piaget and the rationalist is the source of these judgements. In other words, the key issue is the meaning of *a priori*. Piaget's schema can be seen as being applied *a priori*, and used to *assimilate* or judge the world, just as the rationalist's faculties (Hundert, 1995). However, where the rationalist believes the structure of the mind to be fixed at birth, Piaget admits that the functioning of the mind is fixed at birth, but denies that its structure is (Kitchener, 1986).

Piaget can thus be classified as accepting important aspects of both empiricism and rationalism. On the one hand, Piaget maintains the active role of the epistemic subject in

interpreting, categorising, and structuring experience, as is expressed in the notion of assimilation. That is, the subject constructs the epistemic object and in doing so synthesises incoming data via certain operations and structures (Kitchener, 1986). On the other hand, Piaget maintains not only that knowledge is constructed by the subject but also that the epistemic categories themselves are constructed: the notion of accommodation.

Piaget accepts that certain concepts or categories are necessary for us to have knowledge, though his list of concepts "necessary for thought" varied somewhat over time – including formal laws of logic, the notions of time and space, the ideas of cause, quantity, classification, as well as concepts of objects, number, chance, reality, and motivation, and emotional, moral and social categories (Kitchener, 1986). However, in positing the necessity of knowledge, Piaget differs significantly from the necessity that emerges from the modularity thesis (s. 4.2.2). While Piaget accepts the necessity of certain concepts for experience, he rejects the idea that a certain interpretation of these concepts is necessary. Kitchener (1986) illustrates this difference with reference to the notion of the *a priori*. Piaget rejects the notion of *a priori* categories as being fixed at birth, what Kitchener refers to as 'temporal priority', though accepts the notion that categories are universal and necessary, what Kitchener refers to as 'logical priority'. That is, Piaget accepts that change in these necessary categories would not be accidental, but in some sense rationally necessary (Kitchener, 1986). It is thus suggested that Piaget accepts a "looser version of transcendental knowledge": if there is a logic to development, the historical necessity of concepts have an underlying developmental necessity (Kitchener, 1986). That is, a dialectical construction of categories follows a certain stage sequence that universally and necessarily lead to the construction of the cognitive structures characteristic of adults who experience the world in the same manner – for instance, mathematics and logic.

Piaget provided a way to understand how the "learning" of concepts *a posteriori* is consistent with the pre-requisite existence of concepts *a priori* through his stages of cognitive development (Hundert, 1995). That is, through the proposal of primitive schema and the processes of assimilation and accommodation Piaget provided the means to incorporate both the *a priori* and the *a posteriori*, as well as the notion of innate structures into the development of concepts. Thus, Piaget sits between, and

accepts aspects of both empiricism and rationalism. He accepts both the empiricist notion that concepts are learned, and the rationalist notion that learning is organised by the subject through the application of pre-existing concepts. Concepts are both *a priori* and *a posteriori*.

It is important to distinguish this interpretation of Piaget's genetic epistemology from what has been termed the "phylogenic fallacy": the notion that the development of the individual somehow parallels the evolution of the species. That is, what is not being argued here is that the process or outcome of the development of environmental preferences in the context of interaction with the local environment parallels the picture of the evolution of environmental preference described in section 4.2. Instead, in Piaget's framework, the outcome of this evolutionary process would determine the form of any primitive schema inherited by the child. Such schema may work to shape subsequent interaction with the environment, and thus the development of necessary categories. However, it is important to note that these necessary categories are not fixed at birth. Any historical necessity in preferences or concepts is the result of a developmental necessity based upon the application of primitive schema in determining the interaction with the environment that results in the construction of cognitive structures characteristic of adults who experience the world in the same way. In no way do such primitive schema imply the development of the individual in a manner paralleling the evolution of the species. However, it can help to explain historical necessity in the context of development in the local environment.

4.5.3 Piaget's genetic epistemology and environmental preference.

Piaget's suggestion that the functioning of the mind provides the basis for the learning of universal concepts allows both the universalities of the 'nature' approach and the learning aspects of the 'culture' approach to be incorporated into one framework. Piaget's description of a process of cognitive development that maintains within it both a role for local environmental factors as well as the notion of necessity in conception allows both the argument that environmental preferences are locally determined and the argument that there are universal aspects of environmental preference to be incorporated within one framework.

Specifically, the notion that there might exist some form of logical necessity in the way features of the local environment are assimilated and accommodated into environmental preferences might be expected to result in a preference structure whereby learned preferences reflect universal principles expressed within the local context. Thus, the following characteristics of environmental preference might be predicted:

1. The existence of underlying universalities in preference, due to logical necessity in preference development.
2. The contribution of local factors to preference determination, due to the logical necessity in preference development being expressed in the local context.
3. The dominance of local factors over universal factors in determining preference, as these reflect the context specific expression of any universal principles in preference development. That is, any local aspects of environmental preference identified would be expected to encompass universal factors, and thus represent the environmental preferences predicted by the logical necessity of preference development in the local context, as learned preferences are expansions of universal tendencies in the context of the specific local environment.
4. Some relationship between local and universal factors in preference determination, as local factors encompass universal principles.

The possibility that Piaget's genetic epistemology might provide a way to resolve the culture-biology dichotomy in explaining environmental preference provides the subject for the remainder of this chapter.

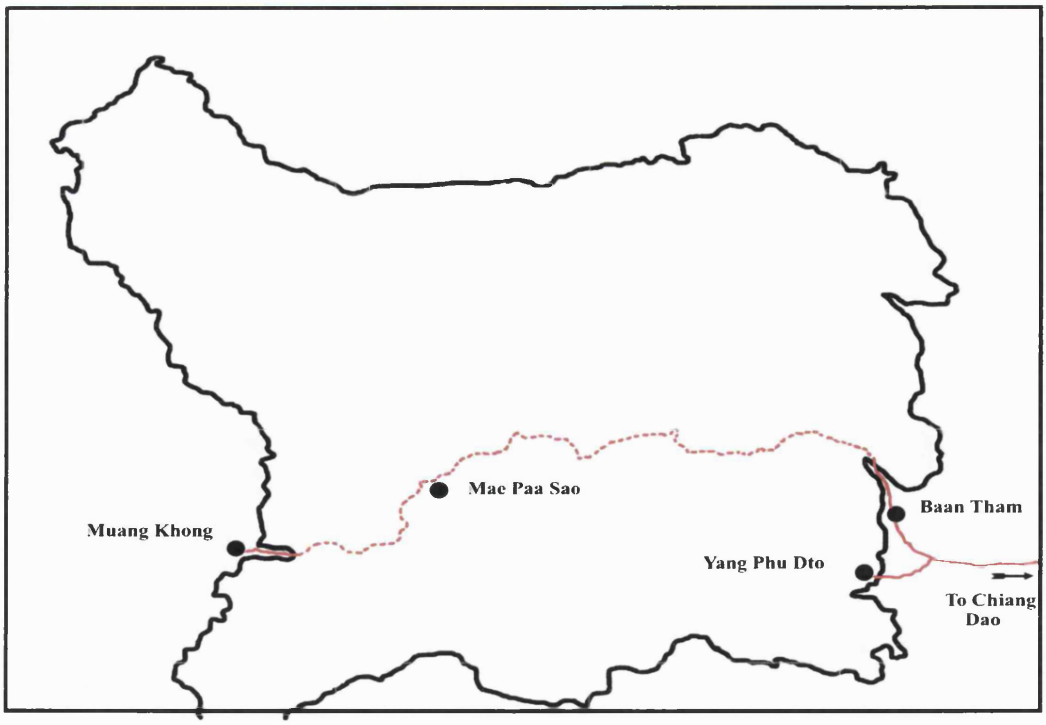
4.6 Method.

4.6.1 Subjects.

A sample of 220 people were selected from a range of social and cultural contexts within the northern Thailand region. The sample was split evenly between Thais from *Chiang Mai* (the second largest city in Thailand), *Chiang Dao* (a small town about 75km north of *Chiang Mai*) and *Baan Tham* (a village in the countryside outside *Chiang Dao*), and the Karen villagers of *Mae Paa* Sao and *Yang Phu Dto* living in the

Map 4.1 Northern Thailand.

Map 4.2 Doi Chiang Dao Wildlife Sanctuary.



hills above *Chiang Dao* (see Maps 4.1 and 4.2). All subjects were over 18 years of age and had been resident in the location for the whole of their life, thereby ensuring the influence of local environmental norms.

4.6.2 Stimulus and response format.

Because landscapes do not lend themselves to easy evaluation by large numbers of people, this study, like many others, employed photographs of landscapes[31]. Each participant was presented with 10 pairs of landscape photographs (appendix 2), composed from 11 different photographs (appendix 1), for a period of approximately 10 seconds, and asked to indicate, where possible, which one was preferred.

In order to guard against the effects of familiarity/un-familiarity, all the landscapes chosen reflected different local, northern Thai landscape forms, ensuring that all the participants were as equally familiar with landscape forms as possible. While incorporation of this criterion into the choice of pictures limited the extent which the landscapes could be varied, this is offset against the fact that, as a result, each landscape could be expansive and thereby representative of conditions true to real life landscape preference formation. Whether the consequent limited range of the features within the environment impacted the results will require further investigation.

The photographs were all colour and the same size. They were chosen to reflect various of the landscapes available in the Northern Thai region, ranging from cultivated fields to plantations to natural forest. They were paired so as to ensure participants faced a choice between as many combinations of different landscape forms as was possible from the photographs. No scenes were used that included people or roads, and the presence of animals, fences, and buildings was kept to a minimum. None of the pictures showed evidence of fire, predators or prey.

[31] Several studies have suggested that people rate landscapes that they visited in much the same way that they rate surrogate photographs of these landscapes. See Lyons, 1983; and Ulrich, 1993 for summary of this literature.

4.6.3 Analysis.

From the brief summary of the literature concerning the possible universal aspects of landscape preference (s. 4.2.1) the complexity, coherence, legibility, mystery, and existence of water were identified as contributing to preference. From a discussion of relevant social norms in the northern Thailand region (see s. 9.3, as well as s. 7.5), local aspects of landscape preference were approximated by 'the extent of forestation' and the 'lushness of the vegetation'. Individual pictures were ranked by an independent panel according to each of these characteristics[32]. A scale of 0 (being weak in the particular characteristic) to 5 (being strong in the particular characteristic) was used.

For each pairing of pictures, the score for the second picture was subtracted from the score of the first for each of the characteristics. This provided an indicator of the difference between the picture combinations for each of the characteristics (a score ranging from –5 to 5) that was then compared with the number of participants choosing the first picture from each pairing as preferred in order to determine the contribution of the different landscape characteristics to people's preference[33]. Firstly, as tests showed the data to be normal and to display homoscedasticity, Pearson and Partial correlations were performed to determine the relationship between individual landscape characteristics and preference. Secondly, a number of multiple regression models were constructed in order to determine the relative importance of landscape characteristics in predicting preference. Thirdly, collinearity tests were performed to identify any correlation between the landscape characteristics used in the above tests. Finally, a factor analysis was run to identify any common factors underlying the landscape characteristics identified.

[32] A total of four people ranked the landscape pictures: two people who had lived in Thailand their whole lives and two people who had lived in England their whole lives. These rankings were averaged to provide the ranking used in the analysis.

[33] Tests were also performed using landscape characteristic ranking scales of 20 to –20 and 50 to –50 in order to assess the sensitivity of the analysis to the scales used. In each case, the scale used had no significant effect on the results obtained, each of which was of the same direction and similar magnitude (Appendix 3).

4.7 Results

4.7.1 Determinants of preference.

The application of Piaget's genetic epistemology to environmental preference predicts a role for both local and universal factors in determining preference. As the data is parametric (s. 4.6.3) and a positive correlation is predicted between the landscape characteristics and preferences, a one-tailed Pearson correlation was performed for each of the seven landscape characteristics and the preferences of the sample population (table 4.1); the higher the correlation coefficient, the more consistently people in that sample group react to that particular characteristic of the landscape in arriving at their preference.

Table 4.1 Pearson correlation coefficients for landscape preferences and landscape characteristics.

Preference	LANDSCAPE CHARACTERISTIC						
	Coherence	Complexity	Mystery	Legibility	Water	Forest	Lushness
Picture 1	0.642*	-0.306	0.041	-0.811**	0.201	0.807**	0.711*

* significant at 5% level; ** significant at 1% level.

Of the seven characteristics highlighted, the extent of forestation, coherence, and lushness were most highly positively and significantly related to preference. The other characteristic highly correlated with preference was legibility, though negatively so, thereby contradicting the literature. Neither complexity, mystery, nor the existence of water showed much correlation with preference, but the results for these factors were not significant at the 5% level.

The fact that the landscape characteristics measured are not mutually exclusive categories, and may in fact be correlated with each other means that the above Pearson correlations cannot be interpreted as the pure relationship between each characteristic and preference. The measurement of the pure, unique relationship between characteristics and preference require that the influence of other characteristics be held

constant and can be determined through the performance of a partial correlation (table 4.2).

Table 4.2 Partial correlation coefficients for landscape preferences and landscape characteristics, controlling for all other variables.

Preference	LANDSCAPE CHARACTERISTIC						
	Coherence	Complexity	Mystery	Legibility	Water	Lushness	Forest
Picture 1	0.9851**	0.9744*	-0.9689*	-0.8446	0.9558*	-0.9655*	0.9177*

* significant at 5% level; ** significant at 1% level.

Once the effects of other characteristics has been taken account of, the correlations between characteristics and preference display a form more in accordance with that predicted in the literature. Complexity, coherence, the extent of forestation, and the existence of water now display a highly positive and significant relationship with preference. Of the other characteristics, mystery and the lushness of the vegetation also display a strong significant relationship with preference, but negatively so, contradicting the literature. Legibility also seems negatively related to preference, though the result obtained is not significant at the 5% level.

The non-correspondence of the results for the landscape characteristics mystery and legibility could be explained through proposing stages in the application of universal aspects of preference determination. For instance, Kaplan (1992) proposed a two stage model of preference determination in which the presence of landscape characteristics coherence and complexity are inquired of first. Only if preference decisions cannot be made at this stage do mystery and legibility enter into preference determination. In the case where preferences are decided at the first stage, it may well be the case the mystery and legibility display a poor correlation with preference.

The above results provide little evidence to distinguish the influence of learned and universal factors in landscape preference. Although the results obtained do not wholly correspond with all the determinants of preference derived from the literature review, both universal and learned elements of landscape preference seem to be present. Further

tests, however, are required if the appropriate combination and relative contribution of these factors in preference formation is to be determined.

4.7.2 Predictors of preference.

The model of preference developed from Piaget's genetic epistemology suggests that local factors will dominate the prediction of preference. However, correlations tell us nothing about the predictive power of variables. One method of determining a complex model of predictors when the relative importance of contributory factors is uncertain is to perform a multiple regression (Field, 2000).

For situations in which the output data is dichotomous, as is the case here, where people's responses are a choice between picture 1 and picture 2, a Probit analysis is appropriate. This determines model parameters for the influence of independent variables over the frequency of response to the variable. A Probit analysis was run on the frequency of participants choosing picture 1 and extent to which picture 1 varied from picture 2 for the landscape characteristics. The regression equation obtained is shown in equation 4.1.

$$P = -0.40 + 0.62W + 0.21F + 1.10Coh + 0.79Com - 0.83M - 0.11L - 0.33Lu \qquad \textbf{Eq. 4.1}$$

P = number of people preferring picture 1.
W = the difference in the existence of water between pictures 1 and 2.
F = difference in extent of forestation between pictures 1 and 2.
Coh = the difference in coherence between pictures 1 and 2.
Com = the difference in complexity between pictures 1 and 2.
M = the difference in mystery between pictures 1 and 2.
L = the difference in legibility between pictures 1 and 2.
Lu = the different in lushness between pictures 1 and 2.

The chi-square statistic for equation 4.1 is greater than 0.005 (0.189) suggesting that there is no reason why the model should be doubted. In terms of the direction of the parameters obtain, the results of the regression model match those of the partial correlation (table 4.2). Moreover, the magnitude of the parameters also suggest a contribution of individual characteristics the same as that suggested by the partial correlation: of those characteristics positively related to preference, coherence has the largest parameter, followed by complexity, water, and forestation; and of the characteristics negatively related to preference, mystery has the largest parameter, followed by lushness and legibility.

However, the order in which predictors are entered into the multiple regression model can have significant impacts on the results obtained. As a general rule, predictors should be entered into the model in the order of their importance in predicting the outcome (Field, 2000). However, it is this order of importance that motivates our undertaking the multiple regression model in the first place, so an alternative method must be sought. Stepwise methods, in which predictors are entered in an order determined by mathematical criteria, are used. Based upon the results obtained in the partial correlation, the predictors to be tested in the determination of preference were narrowed down to the three 'universal' characteristics, complexity, coherence, and existence of water, and the local factor, the extent the landscape is forested, which all displayed a positive correlation with preferences. These predictors were then combined in multiple regressions employing forward[34], stepwise[35] and backward[36] methods of selecting predictors. The results of the forward and stepwise methods are shown in equation 4.2.

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[34] Forward selection of predictors consists of searching for the best predictor based upon the highest simple correlation with the dependent variable. If the chosen predictor significantly improves the ability of the model to predict the outcome it is retained. The next predictor selected is that with the largest semi-partial correlation with the outcome. That is, the correlation with the proportion of the outcome not already accounted for by the predictor already selected. Again this predictor is added to the model if its contribution to the improvement of the prediction of the model is significant.

[35] The selection of predictors in the multiple regression is the same as that for the forward selection method (footnote 34), except that the removal criteria of the least useful predictor is employed as each predictor is added. As such the regression equation is constantly being reassessed to see whether any redundant predictors can be removed.

[36] The backward method is the opposite to the forward method (footnote 34) in that all predictors are placed in the model to begin with and the contribution if each one calculated. The significant value of the t-test is used to assess the contribution of each predictor. This significance value is then compared against the removal criteria of either an absolute or probability value of the test statistic. If a predictor meets the removal criteria (is not making a statistically significant contribution to how well the model predicts the outcome variable) it is removed and the model is re-estimated for the remaining predictors.

$$P = \underset{(t = 4.67)}{\underset{(p = 0.002)}{77.71}} + \underset{(t = 3.66)}{\underset{(p = 0.006)}{21.27F}} \qquad \textbf{Eq. 4.2}$$

P = number of people preferring picture 1.

F = difference in extent of forestation between picture 1 and picture 2.

In both the forward and stepwise selection cases, the only significant contributor to the prediction of preference outcomes was deemed to be the extent the landscape was forested. For every increase in the difference in the ranking of the extent of forestation between picture 1 and picture 2 of 1.0 (scale –5 to 5) another 21 more people prefer the landscape (from a sample of 220). Moreover, this model was found to predict 63% of the variability in preference for picture 1 ($R^2 = 0.626$), and significantly improved our ability to predict preference (see t-statistics; and the change in F-statistic = 13.377, with a significance value of p = 0.006).

The results from the backward method for selection of predictors tells a similar story (equation 4.3). Starting with all characteristics as factors in the model, as the multiple regression model is developed, complexity and coherence are removed as being insignificant contributors to the model, in each case with insignificant change in the ability of the model to predict preference outcomes (the significance of the change in the F-statistic being 0.859 and 0.495 respectively).

$$P = \underset{(t = 3.69)}{\underset{(p = 0.008)}{59.89}} + \underset{(t = 4.69)}{\underset{(t = 0.002)}{23.09F}} + \underset{(t = 2.12)}{\underset{(p = 0.072)}{13.24W}} \qquad \textbf{Eq. 4.3}$$

P = number of people preferring picture 1.

F = the difference in extent of forestation between pictures 1 and 2.

W = the difference in the existence of water between pictures 1 and 2.

The multiple regression models developed would seem to indicate that 'local' factors, specifically the extent to which the landscape is forested, contribute most significantly to the prediction of environmental preference. With the exception of the contribution of the existence of water in the model developed with the backward selection method, universal characteristics were found to be insignificant in their contribution to preference.

4.7.3 The relationship between local and universal predictors.

Our model of environmental preference also suggests that there will be a relationship between local and universal factors in preference determination. One way of exploring this possibility is through indicators of multicollinearity. Although not exceeding the correlation coefficient generally taken as indicating possible multicollinearity problems, 0.9 (Field, 2000), coherence shows a relatively strong relationship with both complexity, and the extent of forestation, and each of these relationships is significant (table 4.3). That is, a landscape that is coherent is likely to be display large areas of forest, and little complexity.

Table 4.3 R-matrix: correlations between landscape characteristics.

		Coherence	Complexity	Water	Forest
Pearson Correlation	Coherence	1.000			
	Complexity	**-0.788**	1.000		
	Existence of water	-0.201	**0.535**	1.000	
	Extent of forestation	**0.775**	**-0.536**	-0.174	1.000
Sig. (1-tailed)	Coherence	.			
	Complexity	**0.003**	.		
	Existence of water	0.289	0.055	.	
	Extent of forestation	**0.004**	0.055	0.316	.

The average Variance Inflation Factor (VIF) for the those predictors excluded from both multiple regression models developed with stepwise and forward predictor selection methods is greater than 1 (table 4.4), indicating that multicollinearity may be biasing the regression model (Field, 2000). However, none of the tolerance statistics calculated for

the excluded variables is below 0.1 (table 4.4), suggesting that multicollinearity is not a problem (Field, 2000). Hence, while the existence of collinearity would imply the unreliability of the multiple regression model (Field, 2000), its existence is uncertain.

Table 4.4 Collinearity statistics for the excluded variables for multiple regressions performed with both stepwise and forward selection methods.

Equation	Excluded predictors	Collinearity Statistics	
		Tolerance	VIF
4.2	Coherence	0.399	2.508
	Complexity	0.713	1.402
	Existence of water	0.970	1.031

Equation 4.2: predictors: (constant), extent of forestation.

The relationship between predictor variables identified in the R-matrix (table 4.3) and the collinearity diagnostics (table 4.4) suggests that the predictor variables could be measuring aspects of the same underlying dimension, latent variable or factor. If this is the case, the 'innate' and 'learned' aspects of preference identified could be said to reflect an entirely separate, more fundamental dimension of landscape preference. One possible way to investigate this is to perform a factor analysis on the predictor characteristics.

A principal component analysis was performed (table 4.5) in an attempt to determine the extent to which variation in the characteristics used in the above investigation could be related to common underlying factors. Based upon the partial correlations between characteristics and preference (table 4.2), the universal variables coherence and complexity, and the local variable the extent of forestation were compared, as they display the strongest relationship with preference. A Kaiser-Meyer-Olkin measure of sampling of 0.604 was obtained, exceeding the 0.5 score required for factor analysis to be appropriate, but still too low to ensure factor analysis provides clear and distinct results (Field, 2000). The Bartlett's Test of Sphericity showed a significance score of 0.003, confirming the notion that there is some relationship between the variables being compared (Field, 2000).

Table 4.5 Factors identified underlying the coherence, complexity and the extent of forestation in landscapes.

	Initial Eigenvalues		
Component	Total	% of Variance	Cumulative %
1	2.405	80.181	80.181
2	0.464	15.483	95.663
3	0.130	4.337	100.000

Three factors/components were identified underlying the coherence, complexity and extent of forestation variables (table 4.5). Of these, component 1 explained 80% of the variance in the three variables. Of the individual variables, the factor identified accounts for 92% of the variance in coherence, 74% of the variance in the extent of forestation, and 75% of the variance in complexity.

Knowing that the three characteristics selected could to some extent be measured by the same underlying dimension causes one to ask the question: How much of our recorded environmental preferences does this underlying factor explain? Using factors scores obtained with the regression method (see Field, 2000), a Pearson correlation was performed between these and the preference scores. However, a correlation of only 0.662 (significant at the 5% level) was obtained. Similarly, when a regression model was run for the factor scores and preferences, it was found that the factor scores only accounted for 44% ($R^2 = 0.438$) of the variance in preference. This would suggest that the landscape characteristics identified are not reflective of some underlying common determinant of preference.

4.8 Discussion.

4.8.1 Distinguishing between local and universal preference determinants.

Concern has been raised over the use of 'the extent of forestation' as representing local factors in preference development because of the emphasis within the literature upon the

seemingly universal character of the preference for 'naturalness'[37]. If 'forestation' can be equated with 'naturalness', and 'naturalness' is a universal aspect of landscape preference, then the investigation performed is not necessarily comparing local and universal aspects of preference. Support for this argument is derived from the work of Kaplan and Kaplan (1982) who present evidence in support of the conclusion that natural environments are consistently preferred to human-made environments. Moreover, natural environments that contain trees and other vegetation are rated more positively than similar environments that lack trees or other vegetation (Ulrich, 1983).

In response to this argument it should be pointed out that, while more 'naturalness' is preferred to less, it is wrong to equate 'naturalness' solely with the extent of forestation. In the work of Kaplan and Kaplan (1982) 'naturalness' is defined as contrasting with the built environment, while Ulrich (1983) includes vegetation other than trees in defining preferred natural environments. Thus, each of the pictures used in the above investigation (appendix 1) can be classified as 'natural', as they exclude man-made elements, and the variation between these pictures in terms of the extent of forestation does not necessarily equate with variation in 'naturalness', as the other vegetation within the pictures also classifies them as natural. Hence, to claim that the extent of forestation of a landscape merely reflects the 'naturalness' of the landscape and thus universally preferred aspects of the environment is to adopt a narrow and perhaps misleading definition of 'naturalness'.

That the extent of forestation does not reflect a universal feature of landscape preference is also supported by, for instance, Orians' (1980, 1986) savannah hypothesis: the notion that 'savannah-like' environments are preferred over others. This is particularly interesting in the present context, as savannahs are contrasted with forests: savannahs possess more open space and more scattered trees, affording distant views and low grassy ground cover. In support of the savannah hypothesis, Balling and Falk (1982) studied the biome preference of different age groups (8, 11, 15, 18, 35 and over 70), asking subjects to rate how much they would like to "live-in" or "visit" five natural biomes: tropical forest, deciduous forest, coniferous forest, East African savannah, and desert. It was found that 8-year old children would rather live in and visit savannah than

[37] Brad Jorgenson, personal communication, International Centre for Environment, University of Bath,

the other four biomes. From age 15 on, the savannah, deciduous forest, and coniferous forest were liked equally well, and all three biomes were preferred over tropical forest and desert. The preference for deciduous and coniferous forest over tropical forest within the study is likely explained by the fact that none of the participants had ever visited a tropical forest, instead being more familiar with the deciduous forest that comprised their experiences. The conclusion is that savannah type environments reflect innately programmed responses that are subsequently modified by experience. Hence, it might be expected that tropical forests might become a preferred environment for those living in the regions possessing such forests, the lesson being that preferences for tropical forests (such as those used in the above survey) are learned rather than innate.

In response to this argument it could be suggested that 'naturalness' is a universal aspect of preference but that its exact definition is socially constructed (Greider and Garkovich, 1994; Macnaughten et al, 1992). Thus, local aspects of the environment are preferred to the extent that they are symbolic of the 'naturalness' category. If this is the case, the extent of forestation may be preferred as it reflects the 'naturalness' category, and is thus reflective of an underlying universal. However, this is not to deny 'the extent of forestation' its locally determined categorisation. That the local determination of preference is reflective of underlying universal preference categories does not constitute an inconsistency in the analysis. Rather, the analysis predicted that local factors in environmental preference would encompass universal factors, or that universal factors would be expressed in the specific context in arriving at local factors.

Thus, while distinguishing between local and universal predictors is required for the analysis, this is not to suggest that the predictors identified represent mutually exclusive categories, as the model itself suggests that universal predictors are themselves an underlying determinant of local predictors through the process of developmental necessity.

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4.8.2 Piaget's theory of knowledge and necessity in environmental preference.

The model of environmental preference developed from Piaget's genetic epistemology makes three predictions:

1. A role for both local and universal factors in determining preference.

   The Pearson and Partial correlations performed (tables 4.1 and 4.2) suggest that both universal and local factors contribute to the determination of environmental preference, supporting both the role of necessity in the development of environmental preference and the assimilation and accommodation of the local environment found within Piaget's model.

2. Local factors will dominate the prediction of preference.

   The regression models produced (equations 4.2 and 4.3) suggest that local factors contribute most to the prediction of environmental preference. The identification of universal features in preference is consistent within Piaget's framework with the observed dominance of local features in the determination of preference. Any universality in concepts is developed in the context of the assimilation and accommodation of the local environment. Thus, in the local context, 'learned' aspects of preference would be expected to predict preference more strongly, as learned preferences are expansions of universal tendencies in the context of the specific local environment. Hence, as the landscape pictures used in the investigation were taken from the local environment, this pattern would be expected amongst the data.

3. There will be a relationship between local and universal factors in preference determination.

   Collinearity tests (tables 4.3 and 4.4) suggest the possible correlation between local and universal factors in preference determination. In particular, a strong relationship is identified between the local factor 'the extent of forestation' and the universal factor 'coherence'. Moreover, component analysis (table 4.5)

> identified a latent factor that explains 80% of the variation in the predictors 'extent of forestation', 'coherence', and 'complexity'. While this factor explained only little of the variation in overall environmental preference, it supports the notion that there is a relationship between universal and local factors in preference determination.

Thus, the results presented would tend to support the ability of the model to explain environmental preferences. However, support for Piaget's model also requires that the universal pattern of locally determined preference be derived 'internally' within the subject, based on primitive schema. Consideration of alternative sources of this pattern reveals problems in concluding this from the data collected. For instance, an alternative explanation of cognitive development "universally and necessarily lead[ing] to the construction of the cognitive structures characteristic of adults who experience the world in the same manner" would be the assimilation and accommodation of environmental universals. In this case, the restraining factor in cognitive development would be external commonalities rather than an internal logical necessity.

The possibility that external commonalities might be the source of universal aspects of preference can be illustrated through consideration of the parallel between the notions of biodiversity and complexity. While a comprehensive survey of the ecology literature will not be attempted in this chapter, an interesting parallel has been noted between one of the proposed universal aspects of preference – complexity – and the ecological principle that biodiversity plays an important role in ecosystem stability (Holling et al, 1995); the closest the author could find to a universal ecological principle[38]. The definition of biodiversity commonly agreed upon by biologists and conservationists is:

> The totality of hereditary variations in life forms, across all levels of biological organisation, from genes and chromosomes within individual species to the array of species themselves and finally, at the highest level, the living communities of ecosystems such as forests and lakes (Wilson, 1994: 359).

[38] The principle that biodiversity is an important factor in ecosystem resilience has been contended by a number of contributors to the ecological science literature. A further discussion of the role of biodiversity in ecosystem functioning is elaborated in s. 7.4.

At a local level, this could certainly be considered comparable with the definition of complexity as it is incorporated into models of evolutionary environmental aesthetics: the richness or number of different objects in the scene. Thus a parallel can be observed between the general ecological principle concerning the role of biodiversity and the preference for complexity in environments. While this does not prove that universality in preference is externally derived, the existence of such a possibility remains open and consistent with the data.

Distinguishing between these alternative sources of universality in preference is beyond the analysis performed, as the method adopted throughout consists of deriving a universal from a universal: universal preference from either a developmental or an ecological universal. There is no reason to believe that the line of causation between these universals runs in any particular direction. Uncertainty as to the line of causation is summarised by Brown (1991: 89) when he states that "every universal is equally a correlate of every other, so the degree of correlation between any of them ceases to be a criterion for judging arguments that posit connections between them".

Such confusion as to the line of causation between correlated universals introduces an element of circularity into the argument; a circularity well illustrated by the possible interpretations of preference forms even when confined to possible interpretations of Piaget's "stage theory". Indeed, Brown (1991), in perhaps the most comprehensive study of human universals currently available, identifies various modes for explaining universals: explaining a universal from a universal; cultural reflection upon or recognition of biological facts; logical extension from (usually biological) givens; diffusionist explanations that rest upon the great age of the trait and, usually, its great utility; archoses; conservation of energy; the nature of the human organism, with emphasis on the brain; evolutionary theory; interspecific comparison; ontogeny; and partial explanations. That there exist such a variety of explanations for universals points to another limitation of the analysis performed: while the results tend to be consistent with an interpretation of Piaget's stage theory, they are also likely to be consistent with any of the other explanations of universality that haven't been considered.

Thus, although it can be concluded that Piaget's work holds the possibility of explaining environmental preference formation, as well as demonstrating necessity in preference, further research is required if this is to be demonstrated conclusively. Appealing to observed universals and consistencies in preference as a method for the analysis of the nature of the development of preference seems to fail to approach the problem at the appropriate level. It is a similar argument that causes Ulrich (1993) to conclude that the innate nature of environmental preferences cannot be derived from their commonality[39]. However, irrespective of their ability to explain the source, appealing to and identifying universals and consistencies in preferences does serve to maintain the possibility of necessity in the development of environmental preference.

[39] Ulrich doubts the validity of the argument that such similarities in preference are genetic in origin, due to the insufficiency of the method involved. He suggests that to determine the exact nature of the genetic influence behind conceptions of nature requires "behaviour-genetic methods". For instance, the use of twin registers, laboratory based experiments, the use of physiological techniques such as facial electromyography (EMG), the response of young children to natural stimuli, and the use of a high-resolution PET (positron emission tomography) scanner to locate the position of brain activity during the processing of natural verses modern stimuli. It is suggested that such methods are required if the form of environmental preference is to be resolved.

5. Overcoming the unfalsifiability of folk psychology: scientific realism and necessity in the development of concepts.

5.1 Introduction

Concerns within the literature over the objectivity of the naturalistic project in the social sciences threaten to undermine attempts to identify necessity in knowledge. The psychological investigation undertaken in the previous chapter attempted to determine whether there exists universal necessity in environment preference, and thus contribute to the resolution of the epistemological debate outlined in chapter 3. However, returning to the philosophical literature, we find a number of epistemological problems with the application of findings in human science to the resolution of epistemological issues. If we are to continue to empirically investigate the necessity of knowledge, the epistemological issues particular to the human sciences require further elaboration. That is, if we are to contribute to the question of whether there can be necessity in knowledge, and thus objectivity, we are required to ask whether we can have objective knowledge of people's beliefs and desires.

First, the approach adopted in chapter 4 represents naturalised epistemology: the scientific study of how we come to know what we know (Stroud, 1985), or more generally the relevance of science to the solution of philosophical problems (Rosenberg, 2000a). However, the validity of the naturalistic project is vigorously debated. It is argued that adopting a scientific methodology in investigating objectivity is simply question begging, as the objectivity of science is itself called into question; an argument summarised in chapter 3. Section 5.2 briefly outlines the problems of naturalised epistemology through the elaboration of Quine's arguments in favour of naturalised epistemology.

Second, the psychological method adopted involves the employment of a folk psychological level of explanation of human action in attempting to naturalise social science: the explanation of actions by reference to beliefs or desires (s. 5.3). That is, having defined objectivity in chapter 3 as the universal validity of knowledge, the investigation in chapter 4 was required to ask questions about the nature and

relationship of people's actions and beliefs. Thus, the epistemological issues particular to the human sciences are invoked once humans become the subject of investigation.

It is suggested that folk psychology fails to satisfy the criteria for a scientific, causal theory. Hence, addressing scepticism regarding the objectivity of knowledge using a theory that itself fails to meet the standards of objectivity is again merely question begging. Thus, the notion that there might be objectivity in understanding human action is called into question, undermining the search for necessity in knowledge. Both these issues require further consideration before we can proceed with our investigation of necessity in knowledge.

The behaviourist "law of effect" is thought to represent a solution to the problems of folk psychology in producing a naturalistic social science (s. 5.4). However, a closer look at the details of behaviourism reveals that it either relies on circularity in the proof of the "law of effect" or suffers from the same problems of folk psychology.

An alternative response to the problems of attempting to naturalise social science resulting from folk psychology is presented in the form of the interpretative approach: rejecting both that science represents truth and that its causal laws provide the aims of social science (s. 5.5). The interpretative approach's call for the end of the naturalistic project and the replacement of causal explanation with the subjective understanding of meaning as the aim of the social sciences is challenged in the form of scientific realism (s. 5.6). Moreover, scientific realism maintains the possibility of investigating the existence of necessity in environmental preference.

5.2 Naturalistic epistemology and scientific objectivity.

The application of psychological investigation to the resolution of epistemological debate, as in chapter 4, is challenged by classical epistemology, as psychology is itself burdened with the epistemological problems faced by the scientific method it adopts. Sceptical epistemology, as presented in chapter 3, is concerned with the legitimacy of the claim that science produces objective knowledge. A classical epistemologist would argue that to make use of science in consideration of scepticism would simply beg the question against the sceptic by making use of the very knowledge he/she calls into

question (Kornblith, 2000). It is circular to use science (psychology) in order to ground the legitimacy/objectivity of science, and to do so would be to commit the naturalistic fallacy: epistemology is concerned with understanding the normative standards that guide our inquiry, but psychology can only tell us how we actually defend our beliefs (Hookway, 2000).

Perhaps the best known defence of the use of psychology in the resolution of epistemological issues is that of Quine, and it is a brief summary of Quine's work that we shall use to outline the main arguments in favour of naturalising epistemology. Despite his rejection of the empiricist theories of meaning and evidence (s. 3.6), Quine did not surrender his commitment to an observational language with a special role in adjudicating competing scientific theories: the notion that we can rationally choose between theories on the basis of their all-round power to systematise and predict observations. That is, Quine and his followers proposed a form of naturalism that retained for science its claim to objectivity (Rosenberg, 2000a). Having previously undermined foundationalist[40] attempts to defend the empirical science, and still maintaining the veracity of the scientific project, Quine sought to replace epistemology with empirical psychology (Giere, 2000). That is, though he holds that science should aim at empirical adequacy, he does so because this is the criterion of adequacy that science has set itself, not because of the superiority of empiricism itself (Rosenberg, 2000a).

Quine recommends an investigation into the source of our general knowledge of the ways of physical objects, and sees the problem arising from the fact that physical things become known to us through the effects they help to induce on our sensory surfaces (Stroud, 1985). The problem then becomes, given the evidence of our senses, how do we arrive at our theory of the world? Traditional philosophy, the classical foundationalist approach, attempts to answer this question through reference to first philosophy, an epistemological theory developed independently of, and prior to, any scientific theorising (Dancy and Sosa, 2000). Quine, by contrast, argued that there is no such first philosophy (Stroud, 1985). Holding that the stimulation of sensory receptors

[40] The foundationalist program encompasses a number of epistemological frameworks. However, they all share a commitment to the existence of a class of beliefs about our own sensory experience about which it is impossible to be wrong, and that these beliefs are sufficient to justify the rest of our beliefs.

is all that we have to go on in constructing and defending theories, Quine asks how it is that humans can arrive at beliefs about the world around them on the basis of such sensory stimulation (Kornblith, 2000). In answering this question, epistemology in Quine's view is a branch of science: epistemology "falls into place as a chapter of psychology, and hence natural science" (1969: 82). It studies the relationship between human beings and their environment.

Quine's conception of human knowledge and therefore his epistemological project shares with earlier philosophers the idea of human knowledge as a combination of two factors: the contribution of the world and the contribution of the perceiving subject. Using these to investigate human knowledge, he suggested that we could subtract man's cues from the physical world from his world view to arrive at the contribution he makes himself (1960). Performing this subtraction, Quine argued that the subjective contribution of the knowing subject will appear as the dominant influence on the present state of our general knowledge. That is, the physical objects we believe in are "posits"; statements of their existence are far in excess of any available data (1960). From the "meagre inputs" of sensory stimulation, we somehow arrive at the "torrential output" of the complex totality of our views about the world. Our belief about the world is therefore a "hypothesis" (Stroud, 1985).

In this sense, Quine would seem to agree with classical epistemology that naturalistic epistemology does not amount to an answer to the traditional problem of our knowledge of the external world. That naturalistic epistemology will never solve Hume's problem of induction based on sensory stimulation is reflected in Quine's statement, "The Humean predicament is the human predicament" (1969: 72). That is, naturalistic epistemology is the empirical scientific study of human knowledge, and Quine seems to concede a circularity in any naturalistic attempt to "validate" our knowledge of the world (Stroud, 1985).

Moreover, by his own arguments, Quine has shown that the employment of theories in psychology in an attempt to explain understanding is itself to adopt a non-observational and therefore, from an empiricist perspective, a non-objective basis from which to criticise opposition to objectivity, as observation is theory laden (s. 3.6). That is, attempts to underwrite the claims of science are themselves paradigm bound, and

undermined by the very philosophical standards of argument and the substantive philosophical doctrines that defenders of objectivity embrace (Rosenberg, 2000a). Hence, Quine's description of the epistemological project as "a chapter of psychology" encouraged many to interpret his view as a rejection of the normative dimension of epistemological thinking.

However, later Quine (1974) seems to change his mind and regard something very like the traditional problem of "validation" as a problem answerable by naturalistic epistemology: the replacement thesis. He goes on to say,

> For me normative epistemology is a branch of engineering. It is the technology of truth seeking [...] There is no question here of ultimate value, as in morals; it is a matter of efficacy for an ulterior end, truth or prediction. The normative here, as elsewhere in engineering, becomes descriptive when the terminal parameter is expressed (1986: 664 – 5).

This argument he bases on the notion that the sceptical challenge arises within science itself. That is, it is exactly our success in understanding the world, and thus in seeing that appearance and reality may differ that raises the sceptical question in the first place (Kornblith, 2000), and unless we have good reason for doubting science, we are warranted in standing firm on our scientific view of the world in order to understand its undoubted legitimacy (Hookway, 2000). Hence, Quine challenges the desire to ground science as a whole, and, in doing so, argues that normative epistemology becomes applied science. The question about how knowledge is possible should thus be construed as an empirical question.

Another attempt to justify the replacement thesis, one employed by Quine himself, is to point to Darwinian evolution for encouragement in answering epistemological questions through explanation of why it is that we should be well adapted to getting 'true' beliefs about the environment (Kornblith, 1985). That is, believing truths has survival value: the survival of the fittest guarantees that our innate intellectual endowment gives us a predisposition for believing truths. It is not necessarily held that beliefs themselves are innate, only that the mental mechanisms which guide the acquisition of beliefs are innate, the result of biological evolution. Examples include the "evolution of cognitive

mechanism program" (Bradie, 1986) and the "Darwinian approach to epistemology" (Ruse, 1986). These provide a normative element to naturalistic epistemology: if we arrive at our beliefs just the way we ought, then the normative question of how we ought to arrive at knowledge and the positive question of how we do arrive at knowledge are equated, and both can be considered through the replacement thesis (Kornblith, 1985). However, if psychology is to replace normative epistemology, there must be a perfect match between the 'how we do' and 'how we ought to' acquire knowledge. This cannot be guaranteed by evolution (Kornblith, 1985; Stein, 2000). The Darwinian argument can thus motivate a version of naturalistic epistemology, but it cannot justify the replacement thesis.

An alternative argument in favour of the replacement thesis is to assume that there are basic principles of rationality that apply to all human beings (Kornblith, 1985). That is, it is not that we all arrive at our beliefs in the same way but rather that rational belief acquisition consists of arriving at beliefs in the way we all do. Rationality is defined as arriving at beliefs in the same way we do. To do otherwise would be unintelligible to us. Once again, this allows the normative and positive questions of knowledge acquisition to be equated and the replacement of epistemology with psychology (Kornblith, 1985).

A number of attempts to fill in the naturalistic account draw a close connection between how people actually reason and how they should reason, thereby attempting to illuminate the relation between the normative and the descriptive. As Kornblith (2000: 299) tells us,

> One view is that the two are identical [...]. Some have argued that the two are, at least, far harder to distinguish than is commonly thought [...]. Others hold that while the two are distinct, any attempt to understand how we ought to reason must proceed in part by examination of how we do reason [...]. Finally, there are thoroughgoing pragmatic accounts, which prescribe processes of belief acquisition solely on the basis of their conduciveness to whatever we might value [...]. In each of these views, the alliance between epistemological theorising and empirical considerations, especially by way of psychology, is far closer than it is on more traditional views.

Detractors of the naturalistic approach maintain that it simply bypasses the very questions which philosophers have long dealt with. That is, far from answering sceptical questions, the naturalistic approach merely changes the problem (Giere, 2000). Thus, disagreement within philosophy over the normative status of naturalistic epistemology remains unresolved. Although the above review is in no way comprehensive[41], it serves to outline the issues involved. Moreover, in the context of the epistemic definition of objectivity (s. 3.2), and our search for necessity in knowledge, our concern with the naturalistic epistemology debate would tend to focus on its positive aspects. That is, we define objectivity as possessing "a content that may be presupposed to be valid for all men". Whether or not such principles have implications for the normative status of naturalistic epistemology, as is discussed above, takes the debate a step further than is necessary for present purposes. Thus, the normative status of naturalistic epistemology shall detain us no longer.

5.3 Folk Psychology and Causal Explanation.

A second problem associated with the psychological investigation of environmental preferences emerges when we turn to the epistemological issues specific to the naturalistic project in the social and behavioural sciences, and the employment of a folk psychological level of explanation of human action: the explanation of actions by reference to beliefs or desires. It is suggested that folk psychology fails in its claim to represent scientific explanation and thus 'objective' knowledge. Hence, its use, as in chapter 4, in the investigation of the objectivity of knowledge is merely begging the question, and produces doubt over any conclusions with regard human beliefs and knowledge.

5.3.1 The unfalsifiability of folk psychology.

In implementing the naturalistic project, we are required to ask, can human action be explained in the way the natural sciences explain phenomena in its domain? An answer to this question must first consider how it is that the natural sciences explain

[41] For a more comprehensive review of the issues and the literature see Kitcher (1992).

phenomena, and then ask whether this method is appropriate to the study of human action.

Since scientific explanation uncovers causal mechanisms, it must involve laws. Scientists advance the "deductive-nomological", or "covering-law" theory in order to describe how science explains laws (Rosenberg, 2000a). This states that to explain a particular event, one deduces its occurrence from a set of one or more laws of nature together with a description of the "initial conditions" that the laws require for occurrence of the event to be explained. Scientists hold that laws are explained by derivation from other, more general laws (Rosenberg, 1995). A scientific theory is just a set of very general laws, which jointly enable us to derive a large number of empirical phenomena: predictions about observations. If observations corroborate predictions, the theory is confirmed to some degree. While this empirical description of science is fallible[42], positivists held that the history of science is a history of progress, a history of increasingly powerful predictions and increasingly precise explanations. The history of science is a history of narrower theories being "reduced" to broader theories (Rosenberg, 1995). One theory is reduced to another when the fundamental assumptions of the first theory can be derived as theorems from the fundamental assumptions of a broader theory.

With this definition of scientific progress in mind, the vindication of the naturalistic project turns on its ability to produce causal laws of human behaviour, and consideration of the veracity of the naturalistic project requires us to ask, Why have the social sciences not provided increasing amounts of cumulative scientific knowledge?[43] In order to answer this question, we must consider the form of explanation employed within the social sciences, what is referred to as "folk psychology", and the problems of treating folk psychology as scientific theory (Rosenberg, 1995).

The form of explanation of human actions most commonly found within the social and behavioural sciences is the identification of the beliefs and desires that lead to action. This folk psychology tends to be of the form (Rosenberg, 1995):

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[42] See chapter 3 for a review of the arguments against the claims to objectivity by empirical science.
[43] For elaboration of social science's failure to uncover laws of even empirical generalisations that could be improved in the direction of real laws about human behaviour see Hollis (1995) and Rosenberg (1995).

> [L] If any agent, *x*, wants *d*, and *x* believes that *a* is a means to attain *d* under the circumstances, then *x* does *a*.

The validity of the naturalistic project relies on beliefs, desires, and actions behaving in the way that causes and effects behave: the occurrence of an event should be derivable from one or more general laws and a statement of "initial" conditions, each of which must be logically independent of one another (Rosenberg, 2000b). That is, in accordance with scientific "progress", in order to improve [L] we need to find cases where [L] has gone wrong, measure the values of the initial conditions and the actual behaviour that it failed to predict correctly, and revise it in order to accommodate the observed action from the inferred package of beliefs and desires.

However, attempting to determine the initial conditions required for a causal social science – people's beliefs and desires – uncovers methodological problems for the naturalist (Rosenberg, 1995). Firstly, in order to identify desires and beliefs with any precision, we need to know more about further beliefs and desires, and so on. That is, by itself, an action never identifies a single belief or desire. It only does so against the background of a large number of other beliefs and desires. This problem of regress has led some philosophers to argue that mental states are "holistic"[44]. Accordingly, our explanations of action cannot help being sketchy and vague.

The ability to measure people's beliefs and desires with greater precision would enable this problem to be overcome. However, a second methodological problem of a naturalistic social science is that, in too many cases, the only available measuring instrument for beliefs and desires is [L] itself. As Rosenberg (1995: 40) states:

> If we know what someone's beliefs and desires are, then [L] will tell us what actions she will undertake. If we know what actions a person has performed, and we know what her beliefs were, then [L] will tell us what her wants were. And if we know what she wanted and what actions she

[44] More detail on the "holism" of mental states is given in s. 3.6: Quine's identification of holistic empiricism in the context of the development of scientific theory – a particular form of mental state.

> performed, then [L] will tell us what she believed. But without at least two of the three, belief, desire, and action, the others are not determinable.

That is, in order to measure initial conditions, we must use [L]. Thus, as long as what is to be explained is an action, nothing could ever conceivably lead us to surrender [L]. [L] is unfalsifiable, and the impossibility of disconfirming [L] casts doubt on its claims to be a causal law, as it cannot provide empirical, scientific knowledge.

5.3.2 Folk psychology and intentionality.

It is suggested that the inability to falsify [L] derives from the fact that [L] itself defines what it is to be an action or interdefines the notions of desire, belief, and action: the logical-connection argument (Rosenberg, 2000b). The interpretation of [L] as a definition, one useful for rendering action intelligible, recasts desires, beliefs, and actions as logically rather than contingently connected. Thus, desires, beliefs, and actions are not causally connected by [L] or any single causal law. This logical connection between beliefs, desires, and actions is, in turn, thought to be the result of their teleological, "intentional" status.

The "intentionality" of beliefs, desires, and actions refers to their "purposefulness", their possessing "propositional content"[45], or their psychological attitudes towards statements (Heil, 2000). The notion of intentionality derives from the puzzle about how the brain can represent the way the world is, or in the case of desire, the way someone wants it to be. The standard approach to the solution of this problem is to suggest that representation involves things 'standing for', 'being about', 'referring or denoting' something else (Schwartz, 1995); that is, to exhibit intentionality, to stand in a special relation of direct apprehension to a proposition.

It is argued that no alternative means of improving [L] will ever be found (Rosenberg, 1995). What is required is some way of measuring a person's beliefs by some distinct effect of belief. However, using behaviour to measure belief or desire suffers from the

[45] The propositional approach to representation is generally associated with Gottlob Frege. From this perspective, beliefs consist in the mind standing in a special relation of direct apprehension to a

problem of "extensionality". That is, such a description fails to achieve "intensionality"[46], as they will be susceptible to substitution by other intentional states, or equivalent descriptions without risking a change in the truth/falsity of the statement. While we can assert that every intentional state is identical to some behaviour or other, this does not provide the possibility of causal explanation, as it does not enable us to identify beliefs and desires in terms of behaviour independent of their effects: actions (Rosenberg, 1995).

5.4 Behaviourism and the explanation of action.

Behaviourism rejects teleological folk psychology. Taking the problem of other minds seriously, behaviourism is sceptical about hypotheses, such as folk psychology, that involve attributing undetectable mechanisms – especially mental ones – to people, as there seems no way to test such claims directly and independently (Rosenberg, 1995). In response it is suggested that the problem of other minds does not need solving, as the social and behavioural sciences are the study of behaviour, and does not require the hypothesis that people have minds/mental states. Thus, the behaviourist argues that explanations containing the terms 'belief', 'desire', and 'action' have little predictive power, as they do not name natural kinds (Rosenberg, 1995). They do not "carve nature at the joints".

This approach corresponds with the shrinking of the domain of the teleological explanatory strategy throughout the history of science. Indeed, it is suggested that science achieved its 'success' by eliminating meaning, purpose, or significance from nature, rather than reducing it to more fundamental theories[47]. Science discovered that more accurate and powerful non-teleological explanations could be provided, and the appeal to intentions was ruthlessly removed. Rosenberg tells us that:

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proposition. An alternative approach is the sentential approach of Jerry Fodor in which the objects of belief are sentences (Tye, 1995).

[46] Intensionality is used to describe an intentional state that cannot be substituted by other intentional states without risking the possibility of changing a truth to a falsity. On the other hand, extensionality refers to an intentional state which can maintain its truth/falsity even when substituted by another intentional state. The application of which can be used to demonstrate that causal approaches to human action are impossible, as there is no way of providing a description of the beliefs and desires that cause action which are independent of one another and independent of the action they are said to cause: which are intensional.

[47] For a brief description of the elimination of meaning from nature by science see s. 6.4.1.

> After Galileo, the stars and planets were deprived of the goals Aristotelian science attributed them; Newton showed that force, acceleration, and gravitational attraction were enough to explain motion. Then Darwin showed that the fitness of flora and fauna to their environments was to be explained without attributing purpose to them or intentions to their creator. [...] Now the only arena in which explanations appeal to purposes, goals, intentions, and meaning is their "home base", human action (1995: 25).

One way to overcome the propositional representations conventionally employed within the human sciences is through the adoption of the conception of connectionist models associated with neuroscience. However, behaviourists reject the use of neurological data. They do so on tactical rather than philosophical grounds (Rosenberg, 1995). That is, it is suggested that, even if descriptions of the neurological causes of actions could be provided, the fine structure of the brain differs so much among people that the details of our neurological explanations in the case of one person would probably not be applicable to anyone else doing exactly the same thing. The natural-kind vocabulary of neuroscience includes synapse firing and acetylcholine production, but it won't include "deciding to vote Conservative", or "preferring coffee ice cream over vanilla" (Rosenberg, 1995).

Behaviourists also reject neuroscientific explanations due to their notion that behaviour is a function of environmental factors alone (Rosenberg, 1995). Thus, we can ignore intervening neural details and still explain almost all human behaviour. That is, there are predictively powerful explanatory generalisations about human behaviour that link it directly with observable environmental variables; the "law of effect" (Rosenberg, 1995):

> [LE] If emitted behaviour is reinforced, it will be repeated with greater frequency, intensity, and duration. If it is punished, it will be repeated with lower frequency, intensity, and duration[48].

Behaviourists thus suggest that the intentional categories of desires, beliefs, and actions be replaced with new ones, attributes of things that are conditional in form: patterns of behaviour, tendencies, dispositions, affordances (Guttenplan, 1995; Rosenberg, 1995). That is, the conventional conception of belief as representations (s. 5.3.2) is replaced with one of tendencies to say and do various things depending on the circumstances (Heil, 2000). That is to say, if certain conditions obtain, then that thing/substance will behave in a certain way. The two approaches differ in one important respect. The conventional view depicts the connection between belief and behaviour to be causal. The behaviourist, in contrast, argues that mental states like belief are not causes of behaviour. Beliefs are dispositional states triggered causally, but because these states are characterised by reference to behaviour, their connection with behaviour is conceptual, not causal (Heil, 2000).

In proposing [LE] behaviourism sought to provide the criterion for good social and behavioural sciences as the "predictively successful unification of observable behaviour". However, while [LE] has been an outstanding success in the laboratory (for instance, B. F. Skinner, 1953), in its application to humans it has been far less successful (Rosenberg, 1995).

Moreover, in response to behaviourism's attempt to maintain the scientific status of the study of human action it is suggested that it may turn out to be nothing more than folk psychology translated into new jargon (Rosenberg, 1995). That is, behaviourist theories are just as teleological, and indeed turn out to be intentional theories themselves. The basis for this argument is that the emission of a certain behaviour results as agents *want* to be reinforced for it and *believe* that they will be. Moreover, the behaviour that results is learned behaviour: learning something about the world, something that can be expressed as a proposition. Such propositions must be presented as an intentional state of some kind. Thus, [LE] faces the same problems as [L] (s. 5.3.2).

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[48] The law of effect represents the leading principles in Skinner's "operant behaviourism" (Rosenberg,

For [LE] to be predictively superior to [L], it is required that descriptions of reinforcers and stimuli independent of the behaviour they control be identified. The environmental stimulus is the observable feature of the environment leading to an operant response that can be reinforced. Those features of the environment that cannot be made to reinforce behaviour are thought not to be stimuli. However, this is to use [LE] to test [LE]. That is, [LE] works with stimuli and reinforcers to cause behaviour, but in order to determine what range of environmental features can be discriminated as stimuli and reinforcers we appeal to [LE]. The alternative means of identifying stimuli and reinforcers is to refer to them as being perceivable (Rosenberg, 1995). However, to do so requires that the notion of concepts be evoked, and thus a return to intentionality. The behaviourist defence of good social science is therefore faced with the choice between circularity and intentionality.

5.5 Interpretation: rejecting predictions in favour of intelligibility.

Opponents of the "scientific" approach to the social sciences reject attempts to naturalise the social sciences as causal theories. Instead, it is suggested that the social sciences are justified on alternative non-naturalistic foundations, and that attempts to treat beliefs and desires as the causes of action are the result of conceptual confusion. The naturalistic approach to the relation between folk psychology and a science of human action has long been associated with the views of Max Weber. However, as Weber recognised, beliefs and desires cannot just be interpreted as the causes for action, but also the reasons for action: they justify it, show it to be rational, render it intelligible – a notion captured in Weber's concept of *verstehen* (s. 3.7). Interpreting beliefs and desires as reasons for actions changes the role of [L] from that of scientific model or law to the identification of the reasons that justify an action. The explanatory strategy of the social sciences is no longer revealing causes and effects but making action intelligible or meaningful, or showing them to be reasonable in the light of beliefs and desires (Rosenberg, 1995). In support of this argument, Wittgenstein (1953: 232) tells us:

1995).

> The confusion and barrenness of psychology is not to be explained by calling it a "young science"; its state is not comparable with that of physics, for instance, in its beginnings. For in psychology there are experimental methods and conceptual confusion. (As in the other case conceptual confusion and methods of proof).
>
> The existence of experimental methods makes us think we have the means of solving the problems which trouble us; though problem and method pass one another by.

d'Agostino (2000) suggests that there are three reasons for wondering whether naturalism can be maintained within the social sciences:

(a) The reflexivity of the social sciences in relation to the objects of their scrutiny. That is, human beings, as the subject of the social sciences, take up points of view with regard their own activities which are influenced by the results of social scientific investigation, and which therefore retrospectively invalidate these investigations.
(b) The complexity of social phenomena, and their imperviousness to controlled experimental manipulation (see Mill's argument in defence of the predictive record of economics, s. 10.5).
(c) The contestability of the theoretical concepts of the social sciences due to the importance of 'value judgements' in applying or refusing many such concepts. This results from the fact that such judgements are themselves partly evaluative rather than descriptive.

Such concerns have persuaded many to reject the naturalist project in the social sciences – the idea that the social sciences should aim at developing abstract general theories which provide the basis for fine-grained predictions of concrete social phenomena – in favour of making the aim of the social sciences understanding or interpretation.

The interpretative approach rejects the notion that natural science has progressed more than the social sciences on two grounds:

(a) The notion that the natural sciences themselves have made the progress that others have attributed to them. That is, the truth of science itself is rejected. (See s. 3.4, s. 3.5, s. 3.6 for a summary of the arguments underlying this claim).

(b) Causal explanation is rejected as the aim of the social sciences. Instead, the social sciences are thought to explain behaviour by rendering it intelligible (Hollis, 1995). They uncover the meaning or significance of action by interpreting what people do. Beliefs and desires are logically linked to actions as their reasons, and that linkage is established by rules.

Folk psychology is a theory in which we repose such confidence that nothing in ordinary life would make us give it up (Rosenberg, 1995). Folk psychology has often been identified as the defining mark of rationality: an agent is rational to the extent that he undertakes the actions that are best justified, given his desires and beliefs. That is, far from being a contingent law, folk psychology turns out to be the definition of what it means to be rational. A notion supported by the logical-connection argument (s. 5.3.2). It is folk psychology that enables us to interpret the behaviour of others. If we fail to understand the actions of others, then by and large it is the fault not of our "theory" but our application of it, as it is probably true by definition that people act in ways they believe will attain their desires (Rosenberg, 1995).

Thus it is suggested that the problems of folk psychology (s. 5.3) disappear if we find the correct way to understand the theory. It is a mistake to interpret intentional explanations as causal theory to be improved upon by the employment of experimental methods. By substituting causal inquiry for understanding the meaning of human action, the scientific approach to human behaviour misunderstands the nature and aims of the social sciences and produces the problems faced by folk psychology. While the natural sciences aim at predictive power and technological progress, the social sciences aim at improving the human condition, something that requires we identify the true meaning of social institutions. Meanings are embodied in rules. Problems explaining behaviour thus emerge for the social scientist in the confusion of regularities and rules.

Hermeneutics takes this appeal to meaning quite literally; finding the meaning of an action is equivalent to the deciphering of a text (s. 3.7). From this perspective, the anthropologist thus attempts to understand the behaviour of a foreign people/culture

through trying to learn the language governing speech acts. To do so requires the assumption that the noises that people emit are actions, and that they follow the rule expressed by [L]. That is, if we set out to learn a foreign language, we must attribute [L] to them, and the only evidence that would lead us to deny [L] as a rule for these people is to conclude that their noises do not have meaning, but nothing would make us surrender the assumption that they do (Rosenberg, 1995). Since social science commits us to treating actions as meaningful, it commits us to the truth of [L] for all people. Anthropology brings us to the point of knowing the folk psychology of our subjects. Beyond this point, however, it is thought that improvement is not possible, as understanding is subjective and there is no necessity in meaning.

However, as previously argued, the possible existence of human cultural universals has caused people to stand back from committing completely to the relativist/interpretativist framework (s. 3.7, s. 3.8). In response to this possible flaw, the scientific realist framework adopts a behaviourist conception of belief while rejecting both contemporary relativism and the scientific notion of causal explanation that underlies conventional approaches to the naturalistic project.

5.6 Scientific realism and natural necessity.

5.6.1 Realism, explanation and science.

Boylan and O'Gorman (1995: 86) tell us that *scientific realism*, sometimes referred to as *transcendental realism*, "deconstructs the tapestry of contemporary relativism while it simultaneously vindicates the objectivity of the scientific endeavour". It is thought to give a more cogent account of scientific explanation than that provided by the positivist tradition (s. 3.3), as well as overcoming the pitfalls of relativism. That is, it is argued that post-modernism is "inadequate as an intellectual response to the times we live in", while positivism is a misguided definition of the scientific endeavour (Potter and López, 2001). In response, it is suggested that scientific realism offers "a more reasonable and useful framework from which to engage the philosophical, scientific, and social scientific challenges of this new century" (Potter and López, 2001).

Scientific realism argues that relativism's rejection of the objectivity of science (s. 3.4, s. 3.5, s. 3.6), as well as the application of science to the study of society (s. 5.5) is based upon the scientific method described by deductivism and positivism: causal explanation. In response scientific realism demonstrates the fundamental flaw in the positivist account of science, and hence transforms the entire 'naturalism' debate in social science (Potter and López, 2001). Thus, what the scientific realist takes as scientific is not what the positivist or hermeneuticist take as science.

From a realist perspective, the discussion undertaken so far is wrong to begin with epistemology, as epistemological questions are dependent upon ontological answers to questions about the nature of existence (Potter and López, 2001). That is, we have so far committed two related errors: reduced ontology to epistemology, and in doing so retained an implicit ontology of the 'empirical world'. Fleetwood (1999) refers to this as the "epistemological fallacy". Thus, while the above discussion investigated objectivity as defined by taking epistemology to be basic, the realist perspective adopts a definition of objectivity in which ontology is taken as basic.

The most ambitious argument in support of realism is that developed by Roy Bhaskar (1978). Given that scientific theories on the whole seem to work remarkably well as an explanation of the world, Bhaskar starts with the ontological question: what must the nature of reality be like in order to make scientific explanation an intelligible activity? Bhaskar's answer is that a realist ontology is presupposed by the social activity of science. That is, if science is to be taken as the combination of sense perception and experimental activity, the independent existence of objects must be assumed (Outhwaite, 1987). From this perspective, the first problem of positivism and empiricism is that they answer this question only implicitly. Their second problem is more serious: that their answer to this question, their implied ontology is philosophically incoherent (Potter and López, 2001). They commit the fallacy of *actualism*, which causes them to be sceptical about philosophical claims about reality.

If we divide reality into the domains of the real (things: structures, entities, mechanisms), the actual (events) and the empirical (experiences), from the perspective of *actualism* "the real is collapsed onto the actual which is then anthropocentrically identified with, or in terms of, human experience, measurement, or some other human

attribute" (Lawson, 1997: 62). That is, the real and the actual are conflated, and the empirical is considered a subset of the real and the basis for all knowledge (Outhwaite, 1987; Potter and López, 2001). Scientific experiment consists of 'artificially' setting up constant conjunctions of events through human intervention. It is from the invariance of such events that causality is understood. Thus, actualism is an *event-based* ontology of invariance, with the empirical being interpreted as a subset of the real.

The relativist critique is not just anchored on the social constructedness of knowledge, but also on the simplification of the world by the causal laws produced by positivism. It sees reality as more nuanced, more complex, but is unable to explain why science continues to produce useful knowledge (Potter and López, 2001). Realism also anchors its argument on a more complex undertstanding of reality, but it gives a richer and fuller description of such complexity. It begins by examining the relationship between experiments and the structure of the world, arguing that the domains of the actual and the real should not be ontologically conflated as in positivism, but that the three domains of the real, the actual, and the empirical should be ontologically distinct. The very purpose of experiment is to create conditions that do not occur naturally. For instance, events can occur without being experiences, and, more importantly, causal mechanisms can neutralise one another in such a way that no event takes place. The experimental situation is designed to exclude such variables that would naturally occur in reality. Thus, the universal invariance of constant conjunctions of events from which scientific explanations of causality are generalised does not necessarily occur in reality (Potter and López, 2001).

Realist ontology is 'thing' rather than event centred, allowing the inclusion of a dimension of reality into the scientific equation that is ignored by actualism (Potter, 2000). Unlike the constant conjunction analysis of empiricism, which assumes that a system within which causal relations are observed is isolated from extraneous influences, a realist analysis of causality can account for the interaction of various causal tendencies within the complex and open system amongst which we live (Outhewaite, 1987). That is, contrary to the conflating of the real and the actual by positivism, the realist ontology suggests that actually occurring events are not exhaustive of the real. The world is composed not only of events and states of affairs and our experiences, but also of underlying structures, powers, mechanisms and

tendencies that exist, whether or not detected, and govern or facilitate actual events (Lawson, 1997).

Potentiality – unexercised or unrealised causal mechanisms – is also a crucial aspect of reality. Realism conceives of reality as consisting in *things* that have characteristics, and that exist independently of us and our investigation of them, and in sets of relations to each other. 'Things' may be powers, forces, mechanisms, characteristics, or sets of relations (Potter and López, 2001). Things possess characteristics which have tendencies to interact in a particular way with other things. The 'transcendental realist' answer to the question 'what must the nature of reality be like in order for science to be intelligible?' is thus that reality must be ordered and structured; not that events must be invariant (Potter and López, 2001).

Thus, realism presents a definition of theory and science contrary to that of positivism. Positivist theory does not explain or refer to actual entities, as knowledge is based upon observables. Realism, in contrast, proposes that theory has a reference in the actual world, referring to the hidden mechanisms of nature (for instance, gravity is real, yet unobservable). That is, theory refers to unobservable yet real entities, something which would be considered meaningless from a positivist perspective (Outhwaite, 1987; Boylan and O'Gorman, 1995).

It is the business of science to attempt to discern the nature of things, to identify their characteristics and tendencies of interaction. However, such interaction is not invariant. Things possess causal power as one of their characteristics, which can only be exercised in certain circumstances. "Events are conjointly determined by various, perhaps countervailing, influences so that the governing causes, though necessarily 'appearing' through, or in, events can rarely be read straight off" (Lawson, 1997). Scientific laws, therefore, are much better understood as tendencies, as part of the characteristics of things themselves (Potter, 2000; Potter and López, 2001). Lawson (1997: 22 – 23) describes tendencies as follows:

> Because actual events or states of affairs may be co-determined by numerous, often countervailing, mechanisms the action of any one mechanism, though real and perhaps expressing necessity in nature, may

> not be directly manifest or 'actualised'. Characteristic ways of acting or effects of mechanisms which may not be actualised because of the openness of the relevant system are conceptualised [...] as *tendencies*. [...] Tendencies, in short, are potentialities which may be exercised or in play without being directly realised or manifest in any particular outcome.

Thus, from the transcendental realism perspective, science is no longer confined to the search for constant event conjunctions, but aims at identifying the structures and mechanisms, powers and tendencies that govern the course of events. Explanation entails providing an account of those structures, powers and tendencies that have contributed to the production of phenomena of interest. The deductive and inductive inference of positivism are replaced by scientific realism's 'retroductive' inference: the identification of a factor that helped to produce or facilitated an event. Thus, rather than being a description of causal laws, knowledge is perceived as statements about underlying structures.

However, our knowledge of things is fallible and limited by our time and culture. That is, while "things possess just what characteristics and powers they possess", features that are independent of our beliefs, perceptions or knowledge – they are intransitive – our alleged knowledge and beliefs are transitive. The world is composed of objects, including causal laws, which are intransitive in the sense of existing, enduring and acting independently of the process of their identification and are irreducible to our knowledge of them (Lawson, 1997). However, as our knowledge of such objects is not merely given in sense experience, and can hardly be created out of nothing, it must come about through a transformation of pre-existing knowledge-like materials (Lawson, 1997). In order words, it is necessary to recognise a *transitive* dimension to knowledge, or epistemology, to complement the intransitive dimension, or ontology. Thus, transcendental realism employs a version of relativism, as knowledge is thought to 'evolve'. Realism presents a picture of science which socially situates itself. As Bhaskar (1978: 250) states:

> Things exist and act independently of our descriptions, but we can only know them under particular descriptions [...]. Science [...] is the

> systematic attempts to express in thought the structure and ways of acting of things that exist and act independent of thought.

In other words, the transitive objects of science are created by humans in an attempt to represent the intransitive objects of science (Outhwaite, 1987). That is, Bhaskar (1979) is careful to distinguish between descriptions of reality and the reality which they attempt to describe, and to point out that, consequently, all descriptions will be to a greater or lesser extent theoretically determined. While objects have causal powers to generate observable phenomena that can be monitored in the patterns and regularities produced in the laboratory, causal theories must be analysed as tendencies, which may be possessed unexercised, exercised unrealised, or realised but unperceived. Therefore, there is not a philosophical concept of 'truth' which can provide the ultimate seal for a particular account. While the basic intuition of correspondence theories is correct – that statements are true if they correspond to the facts of the matter – attempts to formalise the notion of correspondence between statements and states of affairs in a philosophical theory are doomed to failure. Thus, realism is more cautious about the limitations of what is achieved by science, as it takes into account the "unactualised potential" of things.

However, the relativism employed within transcendental realism does not place human interest in opposition to objectivity. We can say that one theory is better than another if it explains most of what the second theory explains plus some further things (Outhwaite, 1987). That is, there are rational grounds for the preference of one theory over another, rational grounds that go beyond human interest and instead are related to reasons why one theory gives a better account of reality than another. Thus, transcendental realism puts forward epistemological caution with respect to scientific knowledge, as opposed to a self-defeating relativist scepticism

5.6.2 The case for scientific realism.

Following Bhaskar, Lawson (1997) points to two observations which highlight the inadequacy of the deductive conception of science and support scientific realism. Firstly, most constant conjunctions held to be significant in science, at least those outside astronomy, only occur under restricted conditions of experimental control.

Secondly, the insights produced through controlled experiments are nevertheless successfully applied outside of the experimental situation. Lawson (1997: 28) describes the contradictions this provides for the deductivist conception of science:

> A counter-intuitive implication of this situation [...] is that any event regularity that a law of *nature* supposedly denotes *depends* upon human intervention. [...] At least as significant, the constant conjunction view of laws leaves the question of what governs events outside of experimental situations not only unanswered but completely unaddressed. In doing so, it also leaves the observation that experimentally obtained results *are* successfully applied outside experimental situations without valid explanation.

Lawson suggests that, in order to make sense of this situation, it is necessary to abandon the view that generalisations of nature consist of event regularities, and to adopt the scientific realist conception of science:

> Experimental activity and results, and the application of experimentally determined knowledge outside of experimental situations, can be accommodated only through invoking something like the transcendental realist ontology of structures, powers, generative mechanisms and their tendencies that lie behind and govern the flux of events in a essentially open world. [...] According to this conception, [...] experimental activity can be understood as an attempt to intervene in order to insulate a particular mechanism of interest by holding off all other potentially counteractive forces. [...] Thus, experimental activity is rendered intelligible *not* as the production of a rare situation in which an empirical law is put into effect, but as an intervention designed to bring about those special circumstances under which a non-empirical law, a mechanism or tendency, can be identified empirically. The law itself is always operative; if triggering conditions hold, the mechanism is activated and in play whatever else is going on (*ibid.*: 28 – 29)

5.6.3 Scientific realism and the social sciences.

The transcendental realist critique has a profound influence upon the possibility of a naturalistic social science. That is, human beings are a particular sort of thing with particular sorts of causal powers. Thus, while the meaning-embedded nature of social reality and the significance of language and the constructed nature of knowledge is important, it is wrong to reject the potential scientific explanation of social reality. As Hárre (1993: 237) states:

> The difference [between the natural and social sciences] emerge when we compare the relation of fact to theory in each kind of science. In the social sciences facts, *at the level at which we experience them*, are wholly the creation of theorising, of interpreting. Realists in social science hold, and I would share their belief, that there are global patterns of behaviour of men in groups.

The predominant issue of concern in applying scientific realism to the social sciences is whether there exist intransitive objects: objects that exist independent of our knowledge of them. The notion that social situations do not exist independently of the way they are interpreted, and that such interpretations are essentially arbitrary is expressed in the hermeneutic and interpretative traditions (s. 5.5). "Human action, unlike molecular biology, for example, is inherently meaningful. The stars, as Tennyson said, run blindly; human beings do not" (Potter, 2000: 19). However, acknowledgement of the role of interpretation does not rule out a realist construal of theories. That is, even if the radical view that structures of society are nothing but interpretations is accepted, it does not follow that there is no criteria for judging interpretations (Outhwiate, 1987). While the subject matter of the social sciences is heavily dependent upon meaning, Bhaskar (1988) suggest that it is precisely this feature of social reality that makes a science of it possible.

Bhaskar (1988) asks, what must social reality really be like in order for human life to be possible? He answers his own question by arguing that there must be structures and order. That is, there must be some intransitive aspects of meaning for human life to take place. Further, some measure of this intransitive dimension of human activity must be at

least partially accessible to us. Thus, while the meaning of human life cannot be simply determined through mere observation and constant conjunctures of events, and social reality is more like a language than a machine, social science is possible because social life is possible. That is, meaning is understandable and communicable[49]. In other words, there is an element of necessity in understanding. Social science exists because there can be objective answers to questions such as: what does this mean? It is possible to be objective about subjectivity. Thus, the methods of the social sciences need not have the narrowness of the positivist straitjacket; they need only be appropriate to their object.

As Lawson (1997: 36) argues:

> The importance of [the recognition that event regularities rarely occur in the social realm] is not that social explanation is thereby impossible. Rather, it is that we must embrace a very different conception of explanation to the deductivist covering-law model. Specifically, social explanation, appropriately conceived, is not the attempted deduction of events from sets of individual conditions, and constant-conjunction 'laws', but the identification and illumination of structures and/or mechanisms responsible for producing, or facilitating, social phenomena.

Acknowledging the possibility of naturalistic social science and objectivity in the study of human behaviour, the next chapter turns to the application of scientific realism in the context of conceptions of nature: in particular, the identification of necessity in conceptions of nature.

[49] This argument parallels that expressed in chapter 3: the undermining of the relativist perspective by the existence of cultural universals, and the necessity of such universals for intra-cultural understanding.

6. Direct perception and necessity in the conception of nature.

6.1 Introduction

A review of the anthropological literature concerning the conception of nature reveals a debate that parallels that outlined in the last chapter between relativism and the necessity in understanding proposed by scientific realism: alternative explanations of the "indigenous perspective" – the notion of relatedness or affiliation between humans and the non-human environment – by mainstream anthropology and those that propose the role of 'direct perception' in the development of conceptions of nature. It is suggested that conventional anthropological attempts to explain the "indigenous perspective" (s. 6.2) fail as they are based upon the nature-culture dualism of relativism (s. 6.3, 6.4), and that the notion of direct perception allows this failing to be overcome and the "oneness" of the "indigenous perspective" to be explained through consideration of direct engagement with the environment (s. 6.5.1). Moreover, the notion of direct perception in the development of conceptions of nature displays significant parallels with scientific realism's description of the process of knowledge development within the natural sciences (s. 6.5.2).

6.2 The indigenous perspective and the cultural construction of nature.

With regards the environment, anthropology is concerned with the ways in which natural processes are conceptualised and the natural world classified in different cultures, and the ways in which human societies interact with the natural environment (Rival, 1998). Just as there is disagreement within anthropology as to what culture means, so there is disagreement over whether and how cultures, as symbolic systems, derive their meanings from natural elements (Milton, 1996; Rival, 1998).

The perceived relation of culture and environment has tended to mirror the more general perception of culture within anthropology (Milton, 1996). Throughout the 1950s, in accord with the structuralist/functionalist approach that dominated anthropology at the time, environmental determinism reflected the perceived interaction between culture and environment (Milton, 1996). That is, culture performs the role of maintaining

society in the context of its natural environment, and therefore reflects how people make sense of and adapt to their environment. However, as the problems with the structuralist/functionalist approach began to emerge, and the post-structuralist framework came to the fore, so environmental determinism was replaced by cultural determinism (Milton, 1996), a position reflected in what has become known as the 'indigenous perspective'.

The 'indigenous perspective' on the environment is generally conceived as that in which knowledge and nature are intimately bound. It is based upon an understanding of the relatedness, or affiliation, of the human and non-human worlds (Whitt *et al.*, 2001). Milton (1998) refers to the indigenous perspective as "oneness with nature", a notion captured by Oren Lyons who stated that "We are indigenous people to this land [...] our brothers are all the natural world [...] remember that as long as [we] exist, so will you. But when we are gone, you too will go" (quoted in Whitt *et al.*, 2001).

Whitt *et al.* (2001) summarise the features of the indigenous perspective as a belonging and beholdeness to, and reciprocal relations with nature. They argue that such reciprocal relations between human and non-human are based upon the notion of respect for, or appreciation of the inherent value of nature, which in turn involves knowledge of the integral role it plays in sustaining the natural world. This knowledge, it is suggested, is learned through listening to stories, which are themselves generated from the land, and so are inseparable from it. Hence, to lose the land is to lose knowledge of the land. Tribal understanding is "locked together [...] with the entities so that a place and its knowledge could not be separated" (Roberts *et al.*, 1998; quoted in Whitt *et al.*, 2001: 16). "One result is that the land itself serves as a repository of knowledge" (Whitt *et al.*, 2001: 16), it is part of what relates the human and non-human. Knowledge of the environment is, thereby, conceived of as being fully contextual: specific knowledge requiring specific places whereby it can be recalled and experienced.

The "oneness" with nature is a widely accepted aspect of the indigenous perspective. Within the anthropological literature, there is a strong body of support for the fact that indigenous people perceived nature as a continuum, rather than containing intrinsically separate things. Tanner's (1979) and Scott's (1989) study of the Cree of northern America; Bird-Davis's (1990) comparison of the Nayaka of Southern India, the Mbuti

of Zaire and the Batek of Malaysia; Apffel-Marglin and Rivera's (1995) study of the peoples of the Andes, and Roberts *et al.*'s (1998) study of the Moari all suggest that indigenous people do not conceive of 'nature' as being distinguishable from people[50]. It is also the "indigenous perspective" that underlies the argument that the Karen should be give authority for managing forest resources (s. 1.2).

The report of the World Commission on Environment and Development (the 'Brundtland Report') referred to "the harmony with nature and the environmental awareness characteristic of the traditional ways of life" (WCED, 1987: 115). Moreover, in his opening address to the United Nations Conference on Environment and Development in 1992 (the Rio Earth Summit), Maurice Strong said, "We must reinstate in our lives the ethic of love and respect for the Earth which traditional peoples have retained as central to their value systems" (quoted in Milton, 1998: 87).

The emphasis on the role of stories and culture in the maintenance of the indigenous perspective places it firmly in the relativist framework. That is, humans occupy an 'intentional' world, in which nature does not exist in itself, but only as it is given form and meaning within systems of mental representations, the design of which is transmitted across generations in what is commonly known as culture (Ingold, 1996). This perspective is well illustrated by Muir (1999: 195) in his summary of the humanist perspective to landscapes:

> I do not doubt that as part of nature we intuit strong links between its processes and forms and those of our own bodies ..... But such intuitions are so transformed, overlain and mediated by social, cultural and economic as well as personal meanings historically, that to trace the bio-physiological bases of environmental response seems futile at best, and at worst pandering to the most dangerous ideological interpretation of "human nature".

[50] For other examples see also van Beek and Banga (1992); Leach (1992); van den Breemer (1992); and

6.3 Questioning the difference between industrial and non-industrial conceptions of nature.

The indigenous perspective presents us with the conventional anthropological picture of the benign interaction with their environment by indigenous, non-industrial people, and an appreciation of the interdependence of people and nature that is generally considered lacking within industrial societies. This distinction, however, has implications beyond how environmentally benign different cultures are, and contributes directly to the relativist-naturalist debate, as the indigenous "oneness" with nature is being contrasted with the basis of modern, western culture in the Cartesian dualism that is perceived to underlie science (Milton, 1996). However, if we turn to the specific reflection of nature within industrial and non-industrial cultures, a different story emerges.

Firstly, within Western, modern societies, there is hardly consensus as to the exploitability of nature. Though the form of environmentalism within industrial societies tends to vary between the espousal of a value system that can be accommodated within the existing industrial social structures and one requiring fundamental change in these structures (Kruse, 1974; Cotgrove, 1976; O'Riordan, 1981; Norton, 1991), there is some indication that people within Western society do not strictly conform to the man-nature dualistic perspective, something we are constantly reminded of in our daily lives by the protests of environmental groups.

More significantly, the notion that non-industrial people possess a form of "primitive ecological wisdom" in accordance with the vision of the "noble savage" has been challenged by anthropological studies (Milton, 1996, 1998). It is suggested that this "myth" emerged in support of political arguments against industrialism, and in favour of the autonomy of indigenous people (Milton, 1996). In many cases of indigenous life people may lead their lives in environmentally benign ways, but not as a result of an environmentally benign culture. Instead balance with the environment is the result of other factors, such as (Ellen, 1986):

Balland and Platteau (1996).

(i) Small population maintained by factors other than deliberate planning, such as disease.

(ii) Relative isolation, thereby avoiding the forms of exchange that requires a surplus of wealth, and maintaining a subsistence economy with a built in incentive to keep the economy sustainable.

(iii) Restricted technology, limiting the ability to exploit the environment further.

This divergence of indigenous cultural relations with the environment from that described in the indigenous perspective is also reflected in the diversity of perceptions of the power of nature and human ability to control the environment. The Cartesian nature-man dualism that characterises Western philosophy is considered to underlie Western, industrial society's perceived ability to control nature (Norgaard, 1994; Milton, 1996). However, such man-nature power relations are not confined to Western society alone. A number of indigenous societies have been recorded as perceiving nature as being more powerful than man. For instance, the Dogon of Burkina Faso respect and treat nature properly due to its power to impact their lives (Milton, 1996), and the Wakasigau of Kenya see nature as a force beyond their influence, at whose mercy they live their lives (Milton, 1996). However, Milton (1996) also tells us that aboriginal Australians consider the environment to be created by ancestor beings that travelled through the country. At the same time these ancestor beings also created ceremonies to ensure the perpetuation of the environment. All living Aborigines are considered reincarnations of these ancestral beings and therefore charged with continuing their work through the performance of these ceremonies. A decline in the population of a particular species is blamed on the non-performance of the appropriate ritual, and, therefore, is the failure of the people themselves. Consequently, the relative power of humanity over nature is not something which can automatically be associated with Cartesian dualism.

An important distinction made by anthropologists that provides some insight into the "mythical" nature of the indigenous-scientific dichotomy briefly described above is that between ideology and action, or between culture (consisting of people's thoughts, feelings and knowledge) and social organisation (consisting of individual actions and observable patterns of social activity). This distinction is important because, as

indicated above, the relationship between ideology and action is not simple. Milton (1998: 87) tells us that:

> People who behave in non-destructive ways that enable them to live sustainably do not necessarily respect their environment. Their material requirement may be such that they simply do not need to stretch their environment's capacity to support them. Conversely, people may respect their environment but still act in ways that damage or destroy it. They may regret such damage but see it as beyond their control; they may, for instance, regard protection of the environment as the responsibility of a central government or divine power.

The relationship between ideology and action is particularly problematic in the context of modern, capitalist societies. The distance between individuals and the consequences of their actions means that the expression of values becomes difficult to support through observation of actions[51].

While the above discussion is by no means comprehensive, it would tend to indicate that there exist potential problems with the indigenous perspective as it is presented by mainstream anthropology. To the extent that the "oneness with nature" that is reflected within the indigenous perspective is considered to accord with the myth of the noble savage and the corresponding perceptions of nature, the indigenous perspective is not well supported by the empirical evidence.

6.4 Comparing indigenous and western perspectives on nature.

Within western society, the notion of "oneness" with nature at the heart of the indigenous perspective can trace its roots to the Romantic reaction to Cartesian dualism's separation of the person from nature. However, while it is this "oneness" with nature that the anthropological description of the indigenous perspective attempts to capture, it fails to do so and instead finds itself laboured with the same dualism it is trying to reject.

[51] For an instance of this difficulty see arguments concerning the causes of deforestation (s. 7.2).

6.4.1 Western dualism and the Romantic reaction.

Prior to "modernity", the Scholastic tradition provided an alternative view of perception to that of the Cartesian: the theory of *forms*. Within the Scholastic framework, it is the "intellect" that is responsible for perception. Reality was considered material, while the intellect was not, so the gap was filled by the concept of the "form". The "form" is at once beyond the material, and the concept that gives organisation to material. It therefore represents common ground between the perceived and the intellect, the relationship between which is, therefore, not that between things separated, but between the intellect and something the intellect has *understood* (Pratt *et al.*, 2000).

In contrast, in the Cartesian framework that replaced Scholasticism, perception was thought of as taking place in virtue of the emission or reflection of a beam of light, which impacted upon the perceiver having crossed the spatial gap between perceiver and the object perceived (Pratt *et al.*, 2000). Descartes did not dispense with the distinction between material and immaterial employed by the Scholastics, but added another distinction, the worlds internal and external to the mind. The relationship between the human being and the world was re-conceptualised: an objective reality existing independent of human perception of it or any meaning and significance that human beings might cast over it, a process referred to as *objectivisation* (Pratt *et al.*, 2000). Humans were now considered distinct from the world, the subjects responsible for the construction of the world. As an observer in the modern world, I am directly in touch with the contents of my mind, but beyond my mind is the external world. This Cartesian dualism contrasts dramatically with the emphasis on understanding, and the concept of "sharing" that underlies Scholasticism (Pratt *et al.*, 2000).

An alternative rendering of the changing perception of the world emerging with modernity was developed by Michel Foucault: the split between language and the world. Foucault suggests that, in the pre-modern world, signs are regarded as parts of the things themselves, while, with the modern world, signs become "modes of representation". That is, pre-modern accounts of nature presented a unity between "all that as visible of things" and also "the sign that had been discovered or lodged in them". Words (signs) are intrinsic to nature in the pre-modern world. The introduction of

modern thought separated these two concepts, and language is now considered an independent system of signs which can be used to represent nature. Again the idea of separation of "internal" and "external" is present.

The distinction between the "internal" and "external" worlds "forces us to convert from a literal to a perceptival understanding" of the world (Rolston, 1983: 137). However, this perceptual understanding is not just limited to knowledge, for, if knowledge of the world is not literal, but perceptual, then, values are also perceptual. As Rolston (1983: 135) puts it, the 20th century has been one that we have spent:

> Trying to conceive of ourselves as the sole entities bringing value to an otherwise sterile environment. The effort has pervaded science and technology, humanism and existentialism, ethics and economics, metaphysics and analytical philosophy.

And,

> By this account we have no organs to taste, touch, see or smell value. [...] Beauty and utility are things that we must attend to. When our minds turn aside to other thoughts, though still perceiving the object, such values entirely disappear from consciousness. (Rolston, 1983: 137).

That is, value judgements have to be decided, they are subjective, and have been separated from facts.

With the distinction between "internal" and "external" worlds, and the value-fact dichotomy established "the scene is set [...] for "the environment" to be regarded as fundamentally alien; and what is alien to us has no hold on us: no appeal to our concern" (Pratt *et al.*, 2000: 11). Many commentators have claimed that we need look no further for the origins of modern exploitative attitudes towards nature. Without this objectified concept of the world, nature would be "part of us", and damaging it would be akin to damaging ourselves. It is exactly the nature being "part of us" attitude that the Romantic movement championed.

The philosophical basis of the Romantic movement built upon the critique of the Enlightenment initiated by Hegel: rejecting the passivity of the mind in favour of notions of achievement, development and growth and self-realisation (Pratt *et al.*, 2000). One of the results of this approach was the identification of the human being with nature. Hegel reduced the gap between the subject and the object, so the divide between the human and the non-human world was diminished.

Among the various forms of romanticism one finds perhaps the best known of its proponents, Jean-Jacques Rousseau (1712-78) and his view of the goodness of nature. In his books *Emile* and *Reveries of a Solitary Walker* Rousseau proclaims the goodness of nature over the malady of ill-conceived human interference:

> Everything is good as it leaves the hands of the AUTHOR of things; everything degenerates in the hands of man. He forces one soil to nourish the products of another, one tree to bear the fruit of another. He mixes and confuses the climates, the elements, the seasons. He mutilates his dog, his horse, his slave. He turns everything upside down; he disfigures everything; he loves deformity, monsters. He wants nothing as nature made it, not even man; for him, man must be trained like a school horse; man must be fashioned in keeping with his fancy like a tree in his garden. (1979a: 31; quoted in Taliaferro, 2001: 143).

However, Rousseau never articulated such an ethic as the one hinted at a century before by Michel de Montaigne (1533 – 92): "there is a kind of respect and a duty in man as a genus which links us not merely to the beasts, which have life and feelings, but even to the trees and plants" (1991, quoted in Brennan, 2001: 147). Rousseau's writing, nevertheless, can be easily considered to contain the implicit ethic that emphasises the continuities between humans and animals, a celebration of nature's intrinsic value and a respect for other forms of life for their own sake.

It was not just in philosophical writings that one finds manifest the expressions of the Romantics. Romanticism, more than any philosophical movement, found expression in the arts. The English poet Samuel Taylor Coleridge (1772 – 1834) believed in the

healing power of nature (Brennan, 2001). His most famous ballad, *The Rime of the Ancient Mariner*, has a powerful conservationist message.

Beyond the shadow of the ship,
I watched the water-snakes:
They moved in tracks of shining white,
And when they reared, the elfish light
Fell off in hoary flakes.

Within the shadow of the ship
I watched their rich attire:
Blue, glossy green, and velvet black,
They coiled and swam; and every track
Was a flash of golden fire.

O happy living things! No tongue
Their beauty might declare:
A spring of love gushing from my heart,
And I blessed them unaware:
Sure my kind saint took pity on me,
And I blessed them unaware.

The self same moment I could pray;
And from my neck so free
The Albatross fell off, and sank
Like lead into the sea.

(*The Rime of the Ancient Mariner*, 1798).

The mariner carried a curse for the rest of his life for the killing of the albatross. While blessing the sea-snakes led to immediate improvement of his situation, and the miraculous awakening of his shipmates, he was fated to wander the world telling his cautionary tale to others. Coleridge's work can be seen as evoking a new environmental

sensitivity which called for valuing and respecting nature beyond its usefulness to human purposes.

There are strong echoes of the Romantic critique in environmentalist thought today (Pratt *et al.*, 2000). One of the more radical modern critiques comes from the 'Deep Ecology' movement of Arne Naess, which was founded upon two of Romanticism's leading notions: the concept of growth as self-expression; and the idea that humans are a part of nature[52].

6.4.2 The dualist foundations of the indigenous perspective.

It is the "oneness with nature" at the heart of the Romantic perspective, and its distinction from the nature-culture dualism of the Cartesian framework that the indigenous perspective within anthropology is trying to capture. However, the development of the indigenous perspective saw the true foundations of the reaction against the Cartesian framework lost with the adoption of the epistemology of conventional anthropology. That is, rather than conforming with Romanticism, in which the subject is truly in touch with external reality, the anthropological debate has slipped into cultural relativism and adopted the same dualism that lies at the heart of this western debate that it is trying to reject.

In support of the notion that the social scientific approaches to the environment are founded upon western dualism, Benton (2001) points to three principal reasons for the disempowerment of the sociological tradition in the face of contemporary environmental problems:

(a) The assumption of a categorical opposition between Nature and Culture, an opposition that renders unthinkable the process of interaction and mutual constitution which link the two together.
(b) Post-Kuhnian relativist approaches to the sociology of science have removed the sociological tradition from the scientific detection that is relied upon to make the Green case.

(c) The prevailing value-commitment of sociology is in accordance with the 'Enlightenment' heritage, and deeply at odds with the 'Romantic' inheritance of much of the Green movement, especially more radical deep ecology manifestation.

Benton (2001) goes on to argue that, while dualism is seen as indispensable to the case for an autonomous science of the social/cultural world, only a theoretical breakthrough that enables thinking across the Nature/Culture divide could provide sociology with any hope of grasping the underlying generative causes of our ecological predicament.

The dualism underlying conventional anthropology results from the particular definition of community its adopts. While the Romantic tradition was established upon humans being part of a natural community, conventional anthropology has tended to focus upon humanity as part of a social community. The resulting divorce of human and non-human worlds has provided anthropology with a dualism between society and nature (Ingold, 1992). According to the conventional anthropological view, we must first know the world before we can act in it, and knowing consists of organising the sensations impinging upon the passively receptive human subject into higher-order structures or representations. However, it is generally assumed that the information encoded in sense data is too impoverished to allow specification of the objects and events that subjects claim to perceive (Ingold, 1992). Thus whatever patterning or meaning we find in what we perceive is contributed by our own socially constructed minds. That is, seeing is qualitatively different from knowing, as the community of knowledge creation is that of the human social group, rather than nature as a whole.

Ingold's (1992, 1996) studies of hunter-gatherer groups suggest that, while a "oneness with nature" is perhaps the correct description of the indigenous perspective, its expression in terms of the conventional anthropological approach is not possible. This, he argues, is the result of the fact that this view of the environment is based upon a metaphor derived from human society. This is expressed by Milton (1998: 92) when she states:

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[52] See Pratt *et al.*, 2000; and Matthews, 2001 for a more detailed summary of the philosophy of the Deep

> [Anthropologists'] understanding of interpersonal sharing among themselves represents to them their relationship with the giving environment. [...] As the concept of metaphor depends on a distinction between spheres of reality [...], it would not be possible to describe a culture in this way without assuming [...] that it contains a fundamental division between the two spheres, human and non-human.

Therefore, descriptions of the oneness with nature of indigenous cultures within mainstream anthropology are problematic. Instead, it might be more appropriate to state that indigenous populations distinguish themselves from their environment and see their relationship as harmonious.

The indigenous perspective, therefore, fails in its attempted critique of the Cartesian framework. The intended "oneness with nature" description of humanity is sacrificed with the emphasis on the role of cultural construction of reality. In the case of the hunter-gatherer, material interactions with the forest are said to be modelled on interpersonal relations of parenting and sharing. The latter, from the domain of society, provide the schema by which the former, the object (the environment) is interpreted and understood. "In short, actions that are in the sphere of human relations would be regarded as instances of practical *involvement* with which the world comes to be seen, in the sphere of relations with the non-human environment, as instances of its metaphorical *construction*" (Milton, 1996: 125 – 126). As Ingold (1992: 40) expresses it: "it is supposed that persons can neither know or act upon their environments directly, but only indirectly through the medium of their cultural representation. This supposition rests upon a cognitivist account of perception whose roots lie deep in the western dualistic worldview". Ingold (1996: 119) goes on to state:

> Many anthropologists are well aware that [...] the dichotomy between culture and nature is [...] deeply embedded within the tradition of Western thought. In other words, it is recognised that the concept of nature, in so far as it denotes an external world of matter and substance waiting to be given meaningful shape and content by the minds of man [...], is part of

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Ecology movement.

> that very intentional world within which is situated the project of Western science as the 'objective' study of natural phenomena. And yet the notion that there are intentional worlds, and that human realities are culturally constructed, rests on precisely the same ontological foundations.

Thus, it is suggested that anthropology is based upon the same idealist ontological foundations as the positivism it purports to oppose on exactly these grounds, and that for this reason it fails to explain the "oneness with nature" that lies at the heart of the indigenous perspective. It is the constraints of the Nature-Culture dualism underlying the failure to present an adequate conceptualisation of environmental issues that causes Benton (2001) and Ingold (1992, 1996) to advocate a realist approach to understanding the environment.

6.5 Reinventing the indigenous perspective within a realist ontology.

65.1 Direct perception and "oneness with nature".

The indigenous perspective founds itself on a "oneness with nature" emerging from the cultural construction of the environment. Ingold suggests that this "oneness with nature" within the indigenous perspective is in fact an illusion, and that this results from the emphasis on cultural construction within the anthropological approach. However, Ingold, then takes his analysis a stage further, suggesting that the "oneness with nature" is indeed a feature of hunter-gatherer groups, and that an understanding of this conception of nature requires us to go beyond the ontological idealism of conventional anthropology.

From his studies of hunter-gatherer relations with the environment, Ingold (1996: 117) suggests that "we need to think again about our own ways of comprehending human action, perception and cognition, and indeed about our very understanding of the environment and our relations and responsibilities towards it". That is, while anthropology would conventionally have us understand our conceptions of nature as being metaphorically modelled upon human social relations (s. 6.4.2), instead human-human and human-nonhuman relations are of the same kind, constituted in the same

way through a process of continued active engagement. In this way the division between human and nonhuman is removed.

Ingold demonstrates this by taking to task the metaphorised conception of nature as it is conventionally manifest within the 'indigenous perspective': the notion that reality is constructed through social interaction, and that meanings are imposed on an otherwise meaningless world, and are learned through participation in society, denies any role for the environment itself (Milton, 1996). That is, the social construction model is based upon a contradiction. It leaves no raw materials from which to build cultures. For instance, metaphors are often treated by anthropologists as the main mechanism through which people build their cultural models. However, the concept of metaphor depends on the existence of an "unmetaphorised" reality of which people are aware, and in relation to which "metaphorised" reality can be understood (Milton 1996). From that perspective "culture provides the building plan, nature is the building, but whence comes the raw materials?" (Ingold, 1996: 118).

There must, Ingold goes on to suggest, be a physical world 'out there', beyond the intentional world of culture, otherwise there would be nothing to 'build' with nor anyone to do the 'building'. That is, the "indigenous perspective" metaphorisation of nature is based upon an illusion, "one that stems from an inability to recognise where the reality ends and its schematic representation begins" (1996: 125). In order to provide the raw materials and labourers for this building process, Ingold (1992) argues an alternative notion of perception is required that allows people *direct* knowledge of their environment in the course of their practical activities. He finds such a notion in the pragmatic realism of J. J. Gibson's (1979, 1982) 'ecological psychology' and the concept of *direct perception*, according to which we discover reality through direct engagement with the world thereby allowing people to become aware of 'unmetaphorised" reality.

Ingold, then, removes perception of the environment from within the realm of culture, arguing that it is the conception of both perception and interpretation as socially constructed that creates the barrier between the environment and the people perceiving it. Consequently, in divorcing perception from cultural construction, Ingold provides us with a situation in which culture no longer creates "a barrier between ourselves and the

'real' world, but rather situates us in the world" (Milton, 1996: 63), and support for a realist conception of nature.

From the relativist perspective, the environment acquires 'qualities' as it enters into relationships with subjects. That is, the qualities of objects are not attributes of the objects themselves, but produced through the 'mapping out' of the internal organisation of subjects into the outside world (Ingold, 1992). Direct perception, in contrast, provides a different notion of the attributes of the environment. Gibson (1979) suggests that environmental objects are perceived in terms of what they *afford* the perceiver. Moreover, the *affordances* of objects exist as inherent potentials of the objects themselves, independent of their realisation by subjects. It is Gibson's notion of *affordances* that Ingold adopts to describe the human perception of the environment. That is, as Ingold (1992: 44) puts it:

> Our immediate perception of the environment is in terms of what it affords for the pursuit of the action in which we are currently engaged. The man throwing the stone did not, we suppose, first 'construct' the stone as a missile by attaching a meaning or 'throwing-quality' to impressions of it received through the senses. Nor was the act of throwing merely the bodily execution of a command subsequently issued by the mind on the basis of this construct. Rather, it was the very involvement of the man in his environment, in the practical context of throwing, that led him to attend to the throwability of the object, by virtue of which it was perceived as a missile. Such direct perception of the environment is a mode of engagement with the world, not a mode of construction of it.

Ingold, then, suggests that "life is given in engagement, not in disengagement", and that it is the direct perceptual involvement of subjects in the same environment that precedes sociality and the encoding of perceptions in language. That is, the experience gained through human-nature interaction provide the raw materials of sensation, which, carried over to the domain of social relations, yield a cultural construction of nature, such as 'forest as parent'. This epistemology is reflected in the following passage from Ingold:

> Knowledge of the world is gained by moving about in it, exploring it, attending to it, ever alert to the signs by which it is revealed. Learning to see, then, is a matter not of acquiring schemata for mentally *constructing* the environment but acquiring the skills for direct perceptual *engagement* with its constituents, human and non-human. [...] If the Koyukon hunter notices significant features of the landscape of which the Western observer remains unaware, it is not because their source lies in the Koyukon mind, which imposes its own unique construction on a common body of sensory data, but because the perceptual system of the hunter is attuned to picking up information, critical to the practical conduct of his hunting, to which the unskilled observer simply fails to attend. That information is not in the mind, but in the world (Ingold, 1996: 141 – 142)

And,

> It will at once be objected that I have taken no account of that vital component of knowledge that comes to people through their instruction in traditional lore [...] Do not these stories, and the like, amount to a kind of modelling of reality, a representation of the world that native people might consult as Westerners would consult a map? I think not. People, once familiar with a country, have no need of maps, and get their bearings from attending to the landscape itself, rather than from some inner representation of the same. [...] Far from dressing up a plain reality with layers of metaphor [...], songs, stories and designs serve to conduct the attention of performers *into* the world (ibid.: 143).

6.5.2 Direct perception and scientific realism.

Contrary to the presentation of the 'indigenous perspective' by conventional anthropology, Ingold does not undertaken this argument to suggest that hunter-gatherers are in any way distinctive in their worldview, or to suggest that they are somehow 'at one' with their environment in a way that others are not, or to compare the 'intentional worlds' of the hunter-gatherer and the scientist. Instead, he suggests that the lesson to be

learned is that the human condition is that of being immersed in nature from the start, like other creatures, "in an active, practical and perceptual engagement with constituents of the dwelt world" (1996: 120 – 121). Such consistency of worldview corresponds with the problems faced in attempting to distinguish the features of environmental values from the indigenous and western perspectives.

The process of direct perception which Ingold uses to describe the development of conceptions of nature parallels scientific realism's description of the development of knowledge within the natural sciences (s. 5.6.1). Ingold suggests that objects are perceived in terms of the effects of their 'affordances'. Affordances, a concept Ingold borrows from Gibson, are the potentialities of the objects themselves, independent of their realisation by subjects. The relationship between the notion of affordances and conceptions of nature mirrors the ontology and epistemology employed within scientific realism:

> The world is composed not only of events and states of affairs and our experiences, but also of underlying structures, powers, mechanisms and tendencies that exist, whether or not detected, and govern or facilitate actual events (s. 5.6.1).

Thus, Ingold presents the notion of an instransitive nature, which we come to know through our engagement with it. It is through interaction with nature that we become aware of the effects of nature's affordances, and thus develop knowledge of the 'real' mechanisms and structures – affordances – underlying such effects. Ingold seems to be describing a process of retroductive inference and knowledge based upon statements of structures.

Moreover, Ingold's description of the development of conceptions of nature also accords with scientific realism's commitment to objectivity and necessity in knowledge (s. 5.6.1). That is, the notion of direct perception shares with scientific realism a commitment to "global patterns of behaviour of men in groups", to the existence of cultural universals. As Milton (1996: 103) states, the direct perception approach "allows for the possibility that individuals from very different social backgrounds might come to

understand their environments in quite similar ways". Support for this idea is also provided by Ingold (1992: 52), who states:

> If perception is a matter of discovering meanings in the environment through exploratory action, rather than adding them on through some kind of cognitive processing, then the apparently unique cognitive capacities of humans [...] will not lead them to perceive their environments in radically distinct [ways]. Where humans differ is in their ability to describe and render accounts of their actions discursively, to themselves and others. Language and symbolic thought are not necessary for us to *know* the world, but are needed to make such knowledge explicit. Their role [...] is not to *create* knowledge [...] but to make others aware ..... to share knowledge.

Furthermore, the fallibility of knowledge recognised within scientific realism via the description of unactualised potential and the influence of interests, knowledge and experience in focusing attention is paralleled in the process of developing conceptions of nature through engaging or dwelling in an environment. From this perspective, knowledge does not constitute a pre-specified form, but is achieved. Scott (1989) tells us that the term "life" was translated by one Cree man as "continuous birth", the creative unfolding of a total field of relations in which beings emerge and take on particular forms. The process of perception is described as a process of action. That is, as we move around in our environment we actively seek and pick up information that specifies qualities of the objects we encounter (Ingold, 1992). A similar notion occurs within the scientific realism perspective, where knowledge is thought to 'evolve' (s. 5.6.1).

The recognition of the fallibility of knowledge within the direct perception approach is reflected in a passage quoted earlier where Ingold refers to the potential for different interests to cause focus to fall on different aspects of the affordances of the environment:

> If the Koyukon hunter notices significant features of the landscape of which the Western observer remains unaware, it is not because their

> source lies in the Koyukon mind, which imposes its own unique construction on a common body of sensory data, but because the perceptual system of the hunter is attuned to picking up information, critical to the practical conduct of his hunting, to which the unskilled observer simply fails to attend. That information is not in the mind, but in the world (Ingold, 1996: 142).

The next chapter exploits these parallels as a means of investigating the epistemological claims of scientific realism. In particular, we turn to the search for the "global patterns of behaviour of men in groups" that is reflected in both scientific realism and the direct perception approach.

7. Searching for necessity in conceptions of the environment in northern Thailand.

7.1 Introduction.

In an effort to investigate the veracity of the claims underlying scientific realism and the direct perception approach that there exist commonalities in conceptions of nature (s. 6.5), the role of direct engagement with the environment in developing knowledge of the value of resources is highlighted through a review of the apparent causes of deforestation (s. 7.2). Moreover, cross-cultural commonalities in tree symbolism tend to support the predictions of scientific realism and direct perception (s. 7.3).

The remainder of this chapter is concerned with directly investigating the claims of scientific realism and the direct perception approach. It is suggested that if the claims of these approaches are valid, commonalities in the conception of nature might be expected to be observed. In accordance with the parallels between the epistemological processes identified for the natural sciences by scientific realism and the development of conceptions of nature identified by the direct perception approach, it is proposed that this investigation take the form of a comparison of the conceptions of nature within ecological science and Karen spirit beliefs. Underlying each of these epistemologies is a commitment to objectivity or necessity in knowledge (s. 6.5.2). Thus, conceptions of the functionality of the environment within ecological science and indigenous beliefs shall be compared for commonalities (s. 7.4, 7.5, 7.6). The results of the analysis suggest little reason to accept the existence of cross-cultural commonalities (s. 7.7). However, it is suggested that this is not sufficient evidence to reject the claim of scientific realism and direct perception that there is necessity in the meaning of the environment (s. 7.8). Instead, further elaboration of the precise role of direct perception in the development of concepts is called for if progress in testing its veracity is to be made.

7.2 Environmental engagement and the causes of environmental degradation.

In the light of the suggestion of the direct perception approach that direct engagement with the environment constitutes the process by which conceptions of nature are formed

(s. 6.5.1), it is interesting to consider the factors pertinent in recently observed increases in environmental degradation, in particular deforestation levels. Gadgil (1995) analyses the causes of biodiversity decline in the context of people's relation with the environment using Dasmann's characterisation of people as either 'biosphere people' – having access to a wide range of distantly located resources – or 'ecosystem people' – relying on resources with which they have directly interacted over a long period of time. Gadgil then adds another category of people to this list, that of 'ecological refugees' – 'ecosystem people' who have been deprived of access to their traditional resource base, and who are consequently forced to colonise new resources of which they have had little experience, knowledge or connection.

Using these definitions, Gadgil (1995) concludes that, of the groups, ecosystem people are most likely to use the resources sustainably. He reaches this conclusion through defining the causes of unsustainable resource use as: large catchment areas of resources reducing the impact of unsustainable use of any one area, the possibilities of substituting resources, and tenuous control over resources. Therefore, it is only when catchments are small, the possibilities of substitution are exhausted, and rights to resources are protected that people are motivated to use resources sustainably. This describes the circumstances of the ecosystem people.

Gadgil's definition of the causes of sustainable and unsustainable resource use are supported by evidence of the causes of deforestation, as outlined by Myers (1995). Causes of deforestation that result in the export of value of forested lands out of forested areas, such as logging and cattle ranching, are responsible for one-fifth and one-seventh of deforestation respectively. To other causes of deforestation that can be related to decisions made by those living outside forested areas - road building, dam construction, and commercial agriculture - is attributed one-seventh of overall deforestation rates. All these causes of deforestation can be attributed to the interaction with the forest of what Gadgil refers to as biosphere people.

Another three-fifths of observed deforestation is attributed to shifting cultivation, with poverty and lack of property rights being considered contributory causes. Traditionally, in the categorisation described above, shifting cultivators were ecosystem people, and made sustainable use of tropical forests. However, today, as their traditional, communal

rights are overlooked by centralised property law, and their land is encroached upon through migration, most shifting cultivators represent ecosystem refugees, "shifted" cultivators, displaced peasants who have migrated to unoccupied forest lands[53].

Albeit very crudely, the causes of deforestation tend to point to the relationship between degradation and what Ingold refers to as disengagement. That is, the causes of deforestation tend to be the responsibility of either those who do not directly interact with the resource in question, or, if direct interaction with the resources is possible, this is only so in the short run. In each of these cases, those responsible for deforestation have not had the opportunity to engage directly with the resources, something that, from the perspective of the direct perception model of conceptions of nature, ensures the perceived "oneness" with nature of indigenous people. While the actual values attached to natural resources by each of the different categories of people is not known, their respective relationships with environmental degradation supports the role of direct perception in the development of the indigenous people's perceived "oneness" of themselves and nature.

7.3 Environmental engagement and commonalities in tree symbolism.

Further evidence in favour of the role of direct perception in the development of conceptions of nature is available in the form of support for its prediction of cross-cultural commonalities in conceptions of nature. For instance, it has been suggested that tree symbolism reflects something more than the physical manifestation of social effects (Bloch, 1998; Rival, 1998). Mary Douglas (1996) realised that the identification between the animal kingdom and social life works both ways. Douglas maintains that symbolic similarities result from both local theories about life and death, as well as the practical and utilitarian knowledge of animals constituted in everyday interaction - a notion that supports the idea that conceptions of nature are developed through direct engagement with it. Consequently, natural symbols are not just metaphors or projections of social life; rather, they reflect appreciation of the attributes of natural kinds

[53] For evidence of the changing status of rural people in Thailand from 'ecosystem people' to 'ecosystem refugees' see s. 1.1 and Chalardchai (1989), Hirsch (1987, 1990), Hurst (1990), and Kunstadter (1989a, 1989b).

themselves. For instance, trees due to their ambiguous status as living things are ideal to reflect the abstract notion of human life.

Ethnographic materials do seem to indicate a correlation between the symbolic significance of trees and speculations about life and death across cultures. Symbolic representations of trees seem to play with the ambiguity of trees' relation to life (appearing to transcend death as they are not really "alive" in the first place) to reaffirm the idea that trees stand for life, vitality and self-regeneration. That is, tree metaphors are not simply metaphors or projections of social life, but also reflect the nature of the trees themselves. There is "a more fundamental, non-metaphorical connection between how humans think of themselves and how they think of animals" (Douglas, 1996: 138).

A number of cultural perspectives have been identified relating tree metaphors with human life:

(i) Life cycle rituals

All over the world rituals marking the life cycle make extensive use of trees (Rival, 1998). Giambelli (1998) records the relationship between the coconut palm and birth, marriage and death rituals in Nusa Penida and Bali. Uchiyamade (1998) records similar rituals in South India, as does Knight (1998) for the symbolism attached to fruit trees in Japan. Bonnemere (1998) shows how tree symbolism is closely related to male initiation rites among the Ankava of Highland Papua New Guinea. The Karen ritual of tying a newborn's umbilical cord around young trees (s. 7.5.2) can also be interpreted as relating human and tree life cycles.

(ii) The human body.

Another way that tree symbolism is used is through the analogy between the tree and the human body (Rival, 1998). Such instances are recorded by Giambelli (1998) and Bonnemere (1998). A specific manner in which the tree is interpreted in this vein is through its being perceived as being hermaphroditic (Brosse 1998, Graves 1990, Jung 1968). This sexual uncertainty might explain why the tree is considered such a good

model for the representation of the reproductive couple (Bloch 1992, de Boeck 1994, Howell 1996, Rival 1997).

(iii) Vitality and self-regenerating power.

Various commentators have related the connection between trees, strength, vitality and self-regenerating power. Mauze (1998) relates how the American Northwest coast Indians traditionally absorbed the inner force of trees simply through touching the bark. Giambelli (1998) describes how the Balinese locate the energy of the coconut in its seed, while the Bunaq of East Timor locate the potential for life and growth in the root of the tree (Friedberg, 1979). Bonnemere (1998) relates how the Ankave locate the energy of ritual trees in the fruit juice men prepare.

The heterogeneous nature of the manner in which trees are talked about, used in ritual context, or socially included is often interpreted as implying that no unique meaning can be attached to symbolism (Mauze, 1998). Fairhead and Leach (1998: 254 – 255) state that "local discourse [concerning trees] relates not only to issues of ecology, but also to the material results of access to and control over resources". Interpretation of symbolism must, therefore, understand the political context in which different assertions are made.

However, both the idea that political context is important in understanding symbolism, as well as the observed importance of the physical attributes of trees resulting in commonalities in tree symbolism, support the direct perception approach. Not only are people being seen to engage directly with their environment in developing conceptions of nature, but the fallibility of knowledge development accepted by 'direct perception' provides the room for context dependent knowledge development

7.4 Biodiversity and non-linear ecological models.

The remainder of this chapter is concerned with directly investigating the claims of scientific realism and the direct perception approach. It is suggested that if the claims of these approaches are valid, commonalities in the conception of nature might be expected to be observed. In accordance with the parallels between the epistemological

processes identified for the natural sciences by scientific realism and the development of conceptions of nature identified by the direct perception approach, it is proposed that this investigation take the form of a comparison of the conceptions of nature within ecological science and Karen spirit beliefs. Underlying each of these epistemologies is a commitment to objectivity or necessity in knowledge (s. 6.5.2). Thus, conceptions of the functionality of the environment within ecological science and indigenous beliefs shall be compared for commonalities. We begin the comparison in this section with a brief review of the main characteristics of non-linear ecological models.

Of concern in this investigation will be the ecological dynamics involved in ensuring the reproduction of ecosystems. Consequently, this section briefly summarises current thinking within the ecological sciences with regard the resilience of the natural environment. In order to keep this discussion brief, attention will be concentrated on what has been referred to as a "new ecological synthesis", and non-linear ecological models. In particular, this will take the form of a review of the non-linear ecological model as presented in Holling et al (1995). However, it must be remembered that the views presented below are not universally accepted (see Schrader-Frechette, 2001).

Succession within ecosystems is considered to be the outcome of four different stages within the development of ecosystems: exploitation (colonisation of areas); conservation (movement to equilibrium of the ecosystem); release/death (the disturbance of the ecosystem); and reorganisation/renewal (the minimisation of nutrient loss ready once again for exploitation). Cycles of birth, growth, death and renewal describe the dynamics of the ecosystem. Within this cycle, it is the process of release that is considered most significant for the determination of ecosystem sustainability. Once an ecosystem is established, it is the impact of disturbances at this stage that determine the extent to which species are displaced, and, consequently, the resilience of the ecosystem.

Only a small number of species and physical processes are critical in forming the structure of the overall behaviour of terrestrial ecosystems. Although many species interact within an ecosystem, these interactions are of differing strengths and directions, and only a few of them form the "template" or niche that allow others to "go along for the ride". These species are referred to as "keystone" species. These critical

processes/species entrain the remaining species, so that the diversity observed in ecosystems can be traced to a small set of variables and the niches they provide.

The development of alternative "templates" is determined by the level of diversity within the ecosystem. Specifically, the level of diversity determines the ability of the ecosystem to maintain a certain equilibrium following a disturbance through the provision of species able to fill any niches left open by the destruction of "keystone" species during a disturbance. That is, in conditions far away from equilibrium, the important measure of the resilience of an ecosystem is the magnitude of disturbance that can be absorbed, which in turn is determined by the level of biodiversity in the ecosystem. Wilson tells us that:

> Field studies show that as biodiversity is reduced, so is the quality of the services provided by ecosystems. Records of stressed ecosystems also demonstrate that the descent can be unpredictably abrupt. As extinction spreads, some of the lost forms prove to be keystone species, whose disappearance brings down other species and triggers a ripple effect through the demographies of the survivors. The loss of a keystone species is like a drill accidentally striking a powerline. It causes lights to go out all over (Wilson, 1992: 331 – 332).

While not universally accepted, there would seem to be some support within the field of ecology for the notion that biodiversity is a critical factor in the resilience functioning of ecosystems. It is this notion that will be taken as the basis of the conception of the functionality of nature from the western scientific perspective.

7.5 The cult of the lord: Karen conceptions of nature.

7.5.1 The Karen of northern Thailand.

The Karen are the largest hill tribe in Northern Thailand. Official estimates of the Karen population in Thailand put the figure at approximately 271,000 (Chumpol, 1993), but others argue that this is very low (Kempe, 1997a places this figure at over 400,000). First known through the records of British colonials and American missionaries in the

early 19th century (Shrock, 1970), the date of the Karen's arrival in Burma and Thailand is a question of conjecture rather than historical fact. It is thought that they have lived in Burma since the 13th Century and began to migrate into Thailand in the 18th Century (Shrock, 1970; Anderson, 1993). However, many of the Karen have only entered Thailand this century, especially after the Second World War.

Anthropologists have had difficulty defining the Karen, arguing that they are so culturally diverse that they may not be a distinct ethnic group (Anderson, 1993). The Karen are generally divided into four sub-cultural groups according to their dialectical differences: the *Sgaw, Pwo, Tuangsu*, and *Kayah* (Chumpol, 1993). Within Thailand the two main groups of Karen are the *Sgaw* and the *Pwo*, both of which are referred to as White Karen by virtue of their light complexion, and, in some cases, their white dress (Shrock, 1970; Anderson, 1993), approximately 80% being *Sgaw* (Chumpol, 1993)

While the origin of most of the tribes in N. Thailand is thought to be known with reasonable certainty, the ethnic origin of the Karen is unclear. The Karen people are said to have sprung from a common ethnic origin, though conflicting theories concerning the nature of this origin, and the lack of scientific study of the Karen make this claim uncertain (Shrock, 1970). Furthermore:

> The heterogeneous anthropological, economic, and religious elements found among the widely dispersed Karen tribes, together with their lack of social solidarity and their tendency to disintegrate into splinter groups, further compound the difficulty of establishing a set of criteria by which to determine whether a tribe is Karen (Shrock, 1970: 793).

Such confusion is confounded by the lack of conclusion concerning the origin of the Karen groups of languages, which has variously been classified as Sino-Tibetan, Tibeto-Burman, Mon-Khmer, and as an independent linguistic group (Shrock, 1970).

It is generally thought that the Karen are of Mongolian stock, originally coming from the upper reaches of the Yangtse River – which they refer to as the 'River of Golden Sand' – near Tibet (Anderson, 1993). The river of "running sand", as Shrock (1970) would have us interpret this phrase, is also taken as a reference to the Gobi Desert,

which Chinese sources refer to as the "river of sand", the crossing of which is held as an important part of Karen history (Shrock, 1970). It is, therefore, suggested that the Karen originated in an area bordering Tibet, later crossing the Gobi Desert into China, before making their way into Burma and Thailand (Shrock, 1970). Regardless of whether our 'river' is the Yangtse or the Gobi Desert, we can place the origins of the Karen with the Mongols to the north; a theory supported by their facial characteristics (Shrock, 1970). However, they have left no record of this history or ancestors in that area, and the fact that other racial components can be distinguished among them has given rise to conjecture concerning their origin, including:

> The idea that the Karen belong either to the Chinese or to the Tibetan racial family and that they are of Tibeto-Burman stock. In addition, some of the Karen have been identified as being related to the Mon-Khmer peoples, and they have also been described as being distantly related to the Lao-Thai family. It has also been said that they are aborigines of Burma and, as a result of their god traditions, one imaginative author put forth the hypothesis that they are one of the lost tribes of Israel (Shrock, 1970: 797).

The common denominator of the Karen economy is rice, which is principally grown through the practice of swidden agriculture in the foothills from 400-800 meters elevation. While shifting cultivation, the chosen cultivation technique of the Karen, is generally regarded as one of the major causes of deforestation and soil erosion in Thailand, it is the varieties employed by lowland Thais and some of the other hill tribes that are culpable[54]. The preference for secondary sites and old plots, short cultivation and long fallow periods, and maintenance of larger trees within plots that define Karen shifting cultivation are considered by anthropologists to represent a benign adaptation to the forest environment (Kunstadter, 1983; Chalardchai, 1989; Anderson, 1993; Prasert, 1997; Bello et al, 1998). Indeed, it is estimated that Karen agricultural plots contain over 80 different crop types, while gardens often contain 80 – 90 different varieties (Anderson, 1993). Kunstadter (1983: 336) summarises the maintenance of the Karen's environmentally benign agro-forestry practices:

> The ecological stability which has allowed the Karen to maintain a regular cycle of cultivation and forest fallow has been achieved as a result of a combination of technological and social features. Important socio-cultural features include some degree of community control of swidden land, and swidden cultivation practices, ritualisation of many aspects of swidden cultivation, extensive use of exchange labour [...], and social values which encourage investment in productive resources, such as irrigated fields and elephants, and de-emphasise accumulation of non-productive material possessions.
>
> Traditional Karen technology of agro-forestry has operated at a level which can be sustained through self-renewing natural processes. Soil moisture is conserved and made available to crop plants through a system of swidden cutting. The soil itself is protected against erosion by minimising disturbance of the soil surface in weeding and by deliberate erosion control [...]. Karens clearly understand the benefits to their domestic economy of maintaining the secondary forest which grows on fallow fields, both for the products it yields to them and for restoration of soil fertility for further farming.

While traditionally forests have been considered outside the direct control of the village, the abode of spirits and demons, they did fill an important subsistence role for villagers, providing fuelwood, grazing land, building materials, food (snails, tadpoles, clams, birds, ground lizards, beetles, red ants, mushrooms and fish), medicine, grasses for mat making, and animal skins (Vandergeest, 1996). Rigg (1993) argues that the importance of the forest has generally been underplayed due to the low visibility of the collection process and the products themselves, something done by women and children in their spare time.

[54] For a further discussion of the role of different forms of shifting cultivation in deforestation in Thailand

7.5.2 Karen conceptions of nature.

The sustainability of Karen forest use practices is said to be supported by a complex cultural and social system based upon the 'local' knowledge of Karen farming communities. Perhaps the best expression of such knowledge systems is the extensive array of customs, prohibitions and rituals which regulate the use of the forest: a system of regulations derived from a mix of animism, Buddhism and loyalty to the ways of their ancestors.

Karen understanding of the environment has been described as the Cult of the Lord, and accords with the reciprocal human-environment relations that define the indigenous perspective (s. 6.2). These relationships are reflected in statements such as "The Karen are the forest" and "the forest depends on the Karen" (P. Jai, personal communication, 21.3.2000), or "The forest ensures that humans survive, so humans are required to know how to live with the forest" (P. Dooy, personal communication, 20.9.2000).

Chumpol (1993) identifies the main concepts within the Karen traditional belief system as the *Ywa* (creator god), and the *kaù k'cà* (Lord of the Land). Of particular interest here is the *kaù k'cà* (Lord of the Land): the supreme representative of a given cosmological structure under which man must subordinate himself if he wants to live in peace and prosperity (Yoshimatsu, 1989; Hinton, 1990; Chumpol, 1993), a "volatile entity, one who was ready to take offence" (Hinton, 1990: 96).

The *kaù k'cà* is the spiritual "owner" of the land, responsible for the fertility of the soil (Chumpol, 1993). The state of the Karen's relationship with the *kaù k'cà* is determined by the behaviour of nature. If the *kaù k'cà* consider themselves sufficiently respected by the human settlers of their territory, the crops are abundant, and livestock healthy and fertile. If, on the other hand, the *kaù k'cà* is aroused by human misbehaviour, the result will be crop failure, disease or violent storms. Sometimes his anger will cause the Lord to manifest himself as a tiger and kill the wrong doer or their animals (Chumpol, 1993).

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see s. 1.1.

The animistic beliefs of the Karen can be seen to underlie their spatial conceptions of local forest resources. The spirit 'regional owners' vary in power, and their location varies with the topographical features of the landscape (Chumpol, 1997; Prasert, 1997). Where powerful spirits reside, clearing and even cutting the forest is considered taboo. In other areas villagers must inquire with the spirits before clearing the forest. *K'cà*, translated as "spirit owner" can be divided into several groups according to the place that is owned: sky, ground, mountains and rivers (Yoshimatsu, 1989). While the first two are singular, as there is only one sky and ground, every mountain and river is believed to be inhabited by its own *k'cà*. The mountain and river 'owners' are all governed by the higher ranking 'regional owners', the 'owner' of a single river source. Equally, 'regional owners' are all grouped under the 'supreme regional owner' (the *kaù k'cà* – lord of the land), who controls the territory of one basin together with the mountains surrounding it, and inhabits the area around the largest river source, which is thought to originate in the highest mountain in the territory (Yoshimatsu, 1989).

It is believed that the 'spirit owners' are responsible for the safety and well-being of the inhabitants of their territory, protecting the inhabitants from danger, including falling trees, attack from wild animals, as long as they are worshipped appropriately. The 'Supreme regional owner' governs and influences all the 'residents' in its territory, including, in addition to human beings, animals and plants, as well as all other natural things (e.g. rocks, soil and sand) and natural phenomena (Yoshimatsu, 1989). The importance of the 'regional owners' is reflected in the fact that:

> Before moving out of or into a basin, it is obligatory to inform the Supreme 'regional owners' in the two basins concerned. People are further obligated to inform the smaller 'regional owners' of their moves [...]. In the case of purchasing large domestic animals or marriage, for example, the persons concerned must inform the 'owners' of the moves of people or animals from one territory to another with offerings; otherwise the purchased stock will return to their original living quarters or will not be able to find food in their new habitat, and the married couple will become infertile or will not be able to make a living in their new residence. When the Karen men go hunting into another territory, they must ask for permission from the ['owners'], otherwise no game will be given to them (Yoshimatsu, 1989: 36).

This requirement is also recorded by Hinton (1989: 96) who states that "the Karen still recognise the boundaries between territories [...]. Individuals crossing a border will *wai* [an expression of respect] to the spirit".

There are a number of rituals the Karen perform that reflect this reciprocal basis of relations between them and their environment, including the tying of the umbilical cord of the newborn around a young tree, which acts to create a bond between the individual and the tree (P. Dooy, personal communication, 21.3.2000). The fate of the person and their tree are then intertwined. If the tree is damaged, the person will suffer illness. If the tree dies, the person will suffer the same fate. The well-being of the tree therefore becomes the responsibility of the person. "If the umbilical cord forest is cut, the people's *kwan* [loosely translated as soul] will fly away" (P. Jai, personal communication, 20.9.2000).

The ritual worshipping of the Lord of the Land, called *lù kaù*, takes the form of presenting ritual offerings of food, and asking for divine protection (Chumpol, 1993), and takes place once every three years (Shrock, 1970: 834):

> The *Sgaw* [one of the two larger Karen tribes] perform this sacrifice in January, under the direction of the most influential chief of the area. A suitable spot is chosen near a river and an altar of bamboo is erected [...]. Each family brings a white fowl and each of the chiefs brings a bullock or goat. The animals are tied to the posts, below which is placed a jar of liquor. After the chief has uttered a prayer, the animals are slaughtered and the gallbladders are inspected to see it they are well-rounded, in which case the sacrifice is thought to be acceptable to the gods. Otherwise, it is believed that the sins of the people have not been sufficiently atoned and more sacrifices are called for.

7.6 Method.

Due to the emphasis of writings within ecology, it was decided that ecological and Karen conceptions of the environment would be compared in terms of their perceptions

of the factors contributing to the maintenance of ecosystem function provision. Conceptions of the environment from the perspective of the non-linear ecological model revealed the perceived importance of biodiversity levels in the maintenance of ecosystem function provision (s. 7.4). Although other ecological characteristics can be pointed to as contributing to the maintenance of specific ecosystem functions in specific circumstances, for the purposes of this investigation, biodiversity levels are taken as instance of ecology's conception of the functionality of the forest. Having selected northern Thailand as the research location, an ecological description of forest resources was obtained in the form of a biodiversity survey of the Doi Chiang Dao Wildlife Sanctuary (map 4.2) undertaken during 1995 and 1996 by the Departments of Biology and Geography, at Chiangmai University[55].

Using a combination of forest ground surveys, aerial photograph interpretation, and remote sensing techniques, the biodiversity survey classified the forest resources of the wildlife sanctuary according to forest type, cover, maturity and degree of disturbance, and presented the data in the form of a number of maps of the area. For the present purposes, measures of the maturity, extent of cover and degree of disturbance of the forest were taken as approximations of biodiversity levels[56]. The complex ecological data for each of these indicators was then simplified from the survey data into comprehensible scales for each of these measures, and maps of these features for the area local to Mae Paa Sao – the research location - produced (maps 7.3, 7.4, 7.5, 7.6).

Within the Doi Chiang Dao Wildlife Sanctuary reside members of a number of ethnic groups, including the Karen, Lisu, Lahu and Northern Thais. From these, the Karen were chosen to represent the 'indigenous perspective' due to their perceived benign interaction with their local forest environment, and the consequent availability of ethnographic accounts of their conceptions of nature, not to mention the relatively welcoming nature of the Karen compared to the suspicion and paranoia of the other tribes generated by their apparent participation in the local drug trade. The Karen village Mae Paa Sao (map 7.2) was selected partly due to its accessibility, being located on the

[55] Data reproduced with the kind permission of the University of Chiang Mai and the Office of Policy and Planning, Ministry of Sciences and Technology, Government of Thailand.
[56] The relationship between the aspects of the forest measured (maturity, cover and disturbance) and the level of biodiversity can only be considered an approximation, and a much more detailed model of the

only road through the wildlife sanctuary, but also due to the fact that surveys of the villagers' forest use regulations had already been undertaken by the KGN (pronounced Kor Gor Nor: a northern Thai NGO which acts as an intermediary in negotiations between villagers and the Thai Government over resources access issues).

Being located at the centre of the Wildlife Sanctuary, Mae Paa Sao is bereft of most of the infrastructure normally associated with "modern living" with the exception of communal water taps and simple communal toilet facilities. Cooking is done on open fires. Houses are constructed on elevated pilings, the ground section generally being used for raising pigs. The area of the village is roughly defined as the valley it inhabits. The cultivated areas, all located in the bottom of the valley, are predominantly used to grow rice, though are interspersed with a variety of plants. There are also a number of gardens allocated to the growing of fruit, vegetables and herbs. The crops are predominantly grown for subsistence, though small sales are made to afford the purchase of certain 'luxuries,' such as fish and household utensils, the average monthly income being about 1400 baht (£23).

While the young members of the village migrate to the local Thai town for education and then paid labour, the majority of those included in the sample population had received no formal education and had lived in the village their whole life, ensuring their familiarity with traditional conceptions of the local forest. Equally, although Buddhism is now prominent in Mae Paa Sao – the villagers wake at dawn each morning to present alms to monks from the village temple – their belief systems are still firmly embedded within the traditional animism.

The KGN's survey took the form of walking with village members though forest areas considered by the community to be their traditional land, recording the different areas of regulation; the output of which was a map of the local forest around Mae Paa Sao recording the community's regulation of forest use. However, the political circumstances under which the KGN's surveys were performed[57] required that their

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local environment and the impacts upon it would be required if biodiversity levels were to be measured accurately. This was judged beyond the scope of the present investigation.

[57] The KGN was established to represent forest communities in their negotiations with the Thai Government concerning their rights of access to forest land. Specifically, it was considered that communities local to protected forests were misunderstood and that they represent the most effective way

results be verified. Consequently, one member of each of the 13 households within the village was selected, and an unstructured interview was performed in which details of the areas and under what conditions – time periods and quantities - the forest products used by the villagers (mushrooms, firewood, bamboo, timber, other food products etc) could and couldn't be collected was elicited. While understanding of maps of the local area proved difficult for the villagers, they were able to describe the local area in sufficient detail relative to local landmarks, such as mountains and the network of rivers, for maps to be composed. Accordingly, an impression of community regulation areas was drawn up that verified the map compiled by the KGN (map 7.2).

In accordance with the intended comparison of the conception of the factors contributing to the functionality of ecosystems, it was assumed that the Karen's long term dependence on forest resources for their livelihood had resulted in the evolution of their belief system in order to reflect the functionality of the local forest in the context of their everyday requirements. To the extent that this assumption is reasonable, comparison of Karen beliefs with ecology's emphasis on the importance of biodiversity levels will provide evidence of the commonalities of conceptions of the functionality of the environment. For the performance of such an investigation, Karen spirit beliefs require describing in a format comparable with ecological survey data obtained: topographically. In order to elicit such a topographical description of the spirit beliefs of the inhabitants of Mae Paa Sao, the same sample of villagers was engaged in an unstructured interview concerning the existence and form of spirits that resided in the local forest. Villagers were asked to discuss the nature of different spirits, including the extent of their power in relation to humans and the other spirits and how they might be placated, and asked to describe the location of their residence in the local area. Although the responses elicited displayed an element of inconsistency as to the location of certain spirits, the resulting map (map 7.1) corresponded generally with the views of the villages.

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of conserving Thailand's forest resources. The motivation of the KGN is, then, to present the villagers as capable of managing local forest resources in order to support their calls for rights to their traditional lands within protected forests. Consequently, the possibility that the KGN's own output might be manipulated in favour of the environmentally sound nature of the Karen's own resource use practices has to be entertained.

7.7 Results

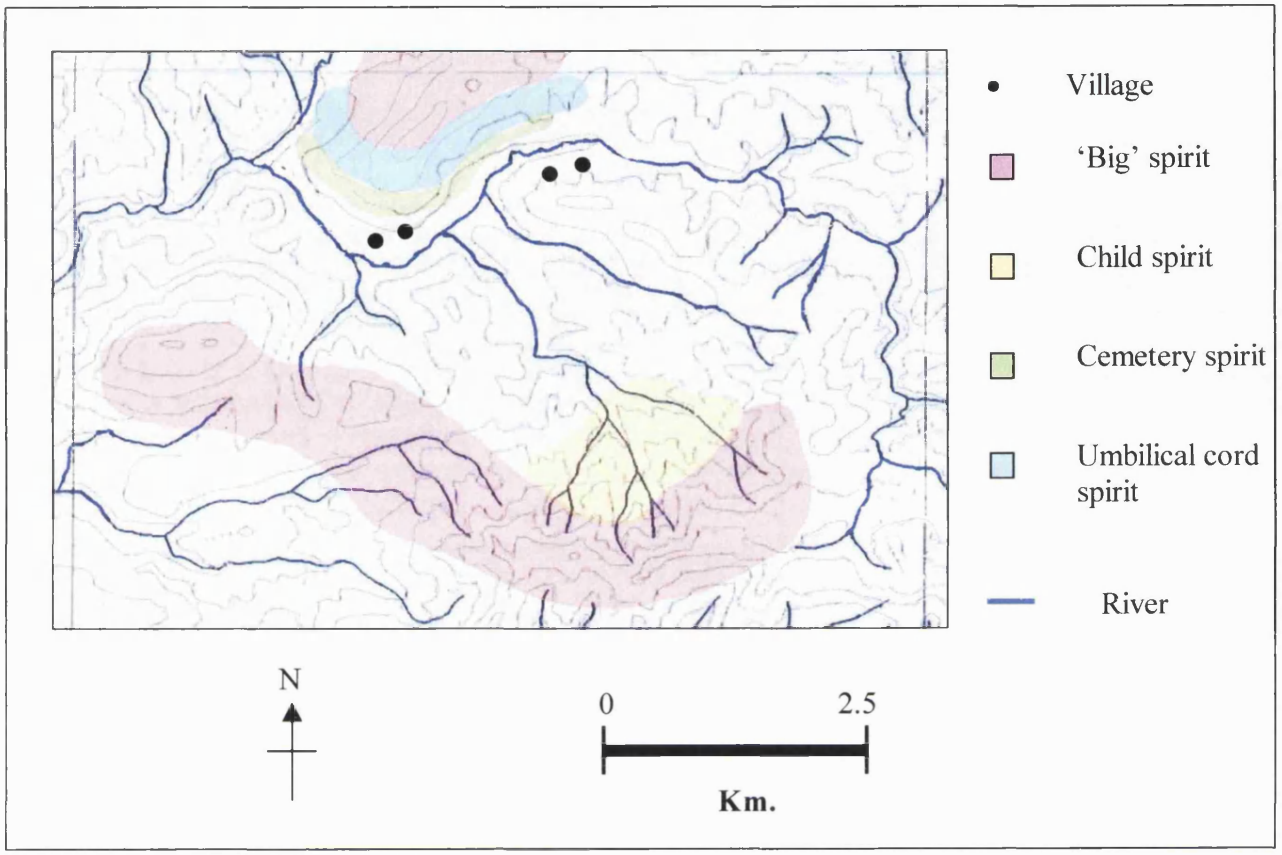
In accordance with traditional Karen spirit beliefs (s. 7.5.2), the villagers of Mae Paa Sao distinguish between forests under the "control" of the following spirit owners:

- Cemetery spirits: located around the cemetery area, the use of which is consequently prohibited, and entry into which frightens the villagers.
- Umbilical cord spirits: location of the ritual tying of the umbilical cords of the new born around young trees, and the use of which is, once again, consequently prohibited.
- Big Spirit (*'Pee Yai'*): located "deep in the forest" in areas from which the villagers are unable to remove anything, "even a leaf".
- Child spirits: located in the area of the "babies cemetery". The spirits of the trees in this area "take care of the children who died as babies" and the villagers are thus prohibited from entering.
- Water spirits: located in and around the rivers.

These spirits are also organised into a hierarchy of "power" in which the 'Big Spirit' is generally recognised as being the most powerful or threatening of the spirits, posing the greatest danger to the well-being of the villagers if not placated. Although less powerful, all the other spirits represent a strong influence upon the behaviour of the Karen, the order of significance of which being cemetery and child spirits, followed by umbilical cord and water spirits.

The location of these spirits in the area local to Mae Paa Sao is represented in map 7.1. The 'Big Spirit' is considered to reside in the higher, steeper areas, and those areas that would be referred to as watershed forest. Each of the cemetery spirits, child spirits, and umbilical cord spirits are located in the hills, though in areas below the 'Big Spirit' on the slopes of lesser gradients. One reason for which would be the fact that, though infrequently, these areas are the location of activities of the villagers – burial rites, umbilical cord rituals etc. – and therefore require a greater accessibility. Finally, water spirits are located in and around the rivers.

Map 7.1 Topography of Mae Paa Sao spirit beliefs.



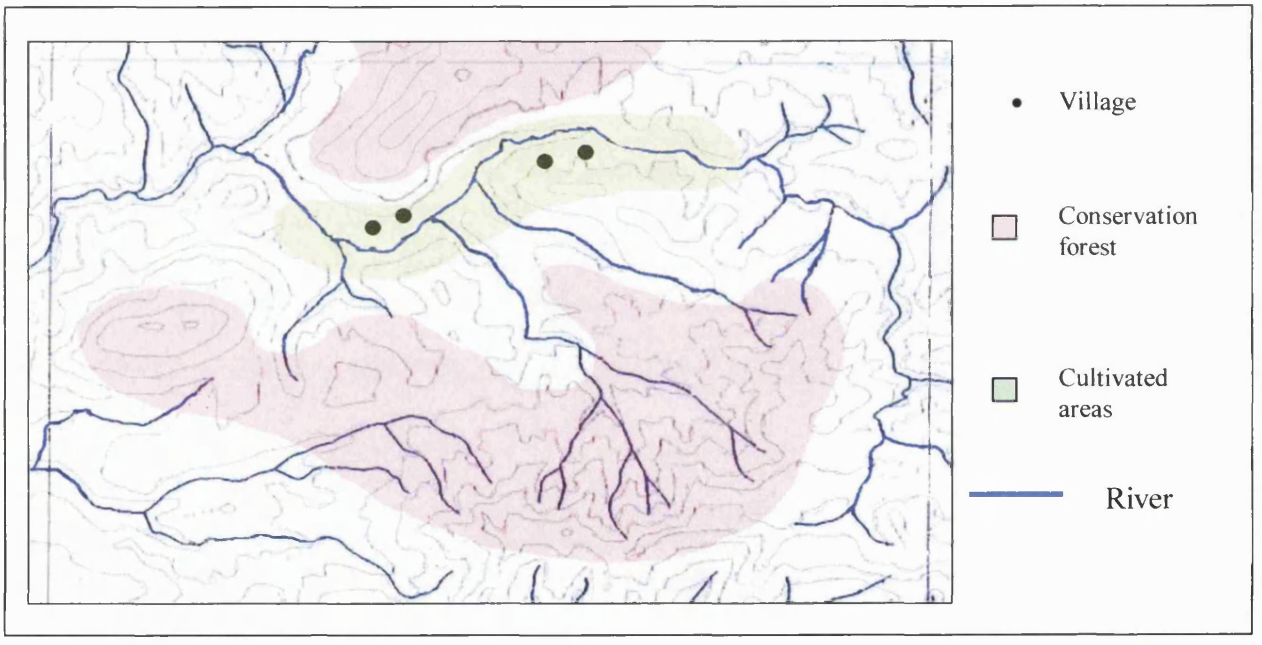
A separate, though related classification of the forests in Mae Paa Sao is that according to the community regulations determining its use. The villagers distinguish between three areas of differing regulation:

- Conservation forest associated with the origin of the major drainage system and water source, "ensuring water all year round". The forest in this area is maintained in "climax" state, as use of this forest is prohibited (6125 rai[58]).
- The use-forest/community forest, the use of which is restricted according to various quantity quotas and period restrictions. Use of the community forest is generally restricted to various food products, such as mushrooms, as well as the gathering of fuel wood, and bamboo and timber for fence and house construction (4020 rai).
- Shifting cultivation area sub-divided by family-plots (358 rai).

[58] 1 rai = 0.16 hectares, or 0.395 acres.

Unsurprisingly, as the spirit belief system represents a very effective means of regulating the forest use of the villagers, and it is reasonable to suggest that community resource use regulation is simply a manifestation of more traditional spirit beliefs in the context of modern rights based discourse, the location of the conservation forest corresponds quite well with the location of the residence of the 'Big,' cemetery, umbilical cord, and child spirits (map 7.2), in the higher, steeper, watershed areas. Considering this similarity, the following analysis will, then, concentrate on the topography of spirit beliefs.

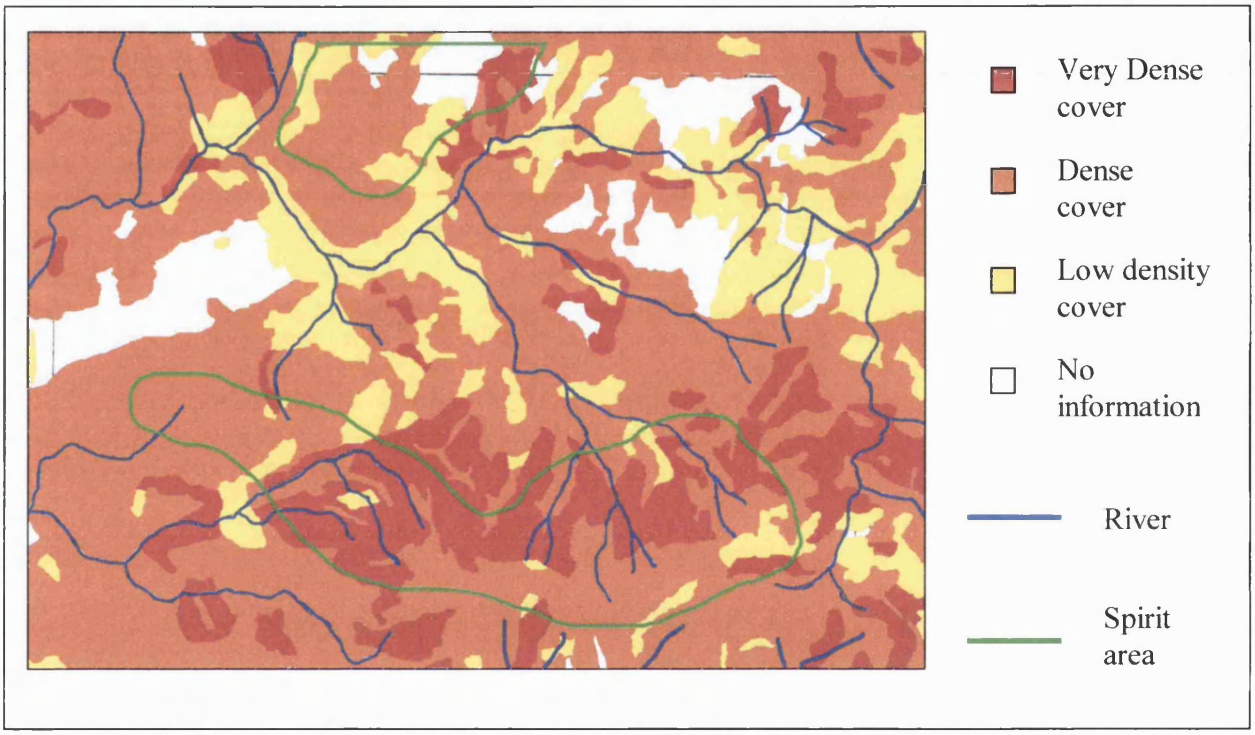
Map 7.2 Common property rights in Mae Paa Sao



Turning to the ecological maps of the same area, comparison can be made between the topography of Karen spirit beliefs and the ecological characteristics of the forest. There is some relation between canopy cover and spirit location, though a tenuous one (map 7.3). It could be said that the majority of the lower density canopy cover is found along the rivers in areas inhabited by water spirits. However, the areas where the other spirits reside display a variety of canopy cover densities, and similar densities can be found in other areas not inhabited by spirits. The area inhabited by the 'Big Spirit' to the south of the village encompasses a large proportion of the area displaying a dense canopy cover. However, the canopy cover in the area to the north of the village, also thought inhabited by the 'Big Spirit,' is less dense. Equally, there are pockets of dense canopy cover

located in areas not considered occupied by spirits. Of interest is the fact that, of the two areas populated by the 'Big Spirit,' the area closer to and more accessible from the village is that with the lower density. That is, it may well be that accessibility, and not just spirit beliefs, plays some role in the use of different areas of the forest.

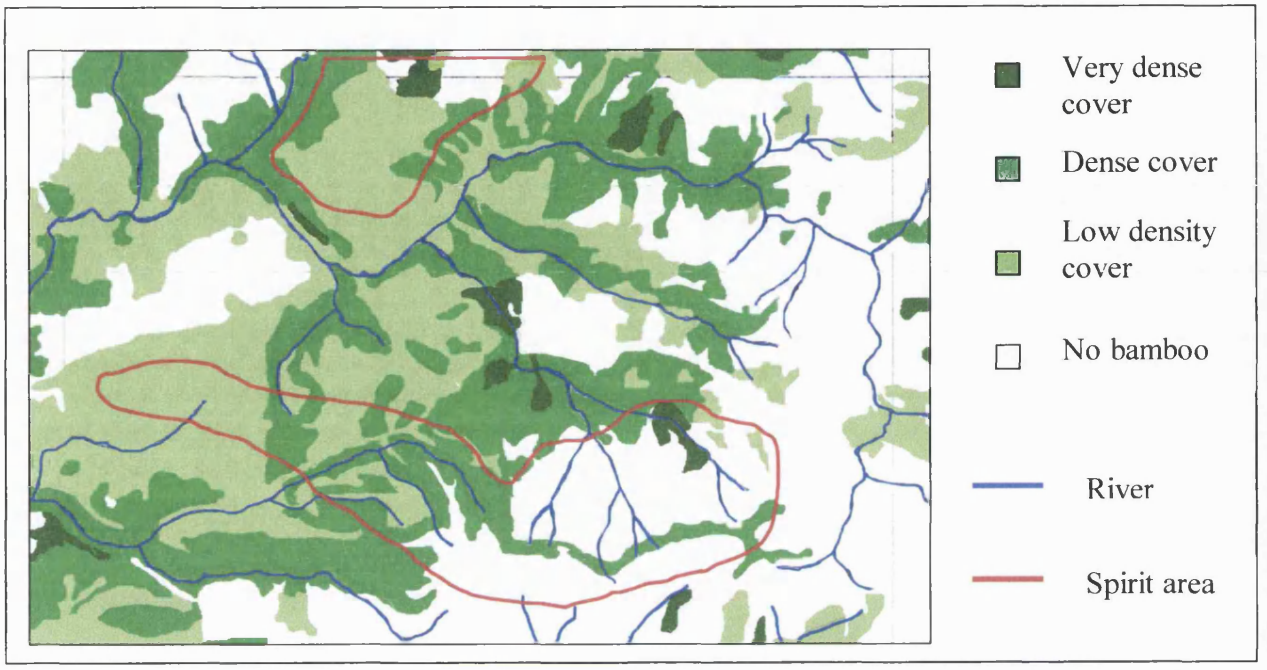
Map 7.3 Forest canopy cover in Mae Paa Sao.



A similar pattern is displayed by bamboo canopy cover, which also seems unrelated to the areas inhabited by the 'Big Spirit,' and the cemetery, child and umbilical cord spirits (map 7.4). The areas inhabited by these spirits cover the whole range of densities of bamboo cover in similar proportions to the whole Mae Paa Sao area in general. However, from the information available, the denser bamboo cover seems confined to the areas of the rivers and, therefore, would correlate with the belief in water spirits.

One caveat to the relationship between canopy density and spirit residence discussed above is that it does not take into account variations in tree species, except for distinguishing between bamboo and other tree species. However, the possibility that different species represent different canopy cover density possibilities tends to

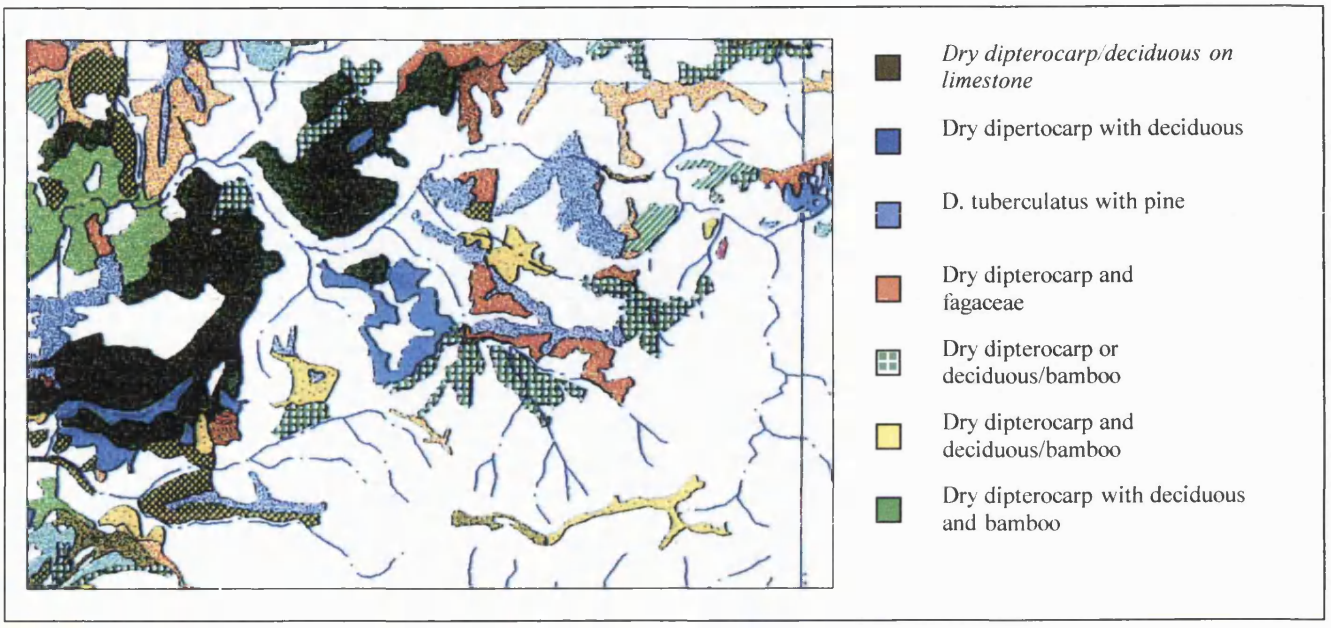
Map 7.4 Bamboo cover in Mae Paa Sao.



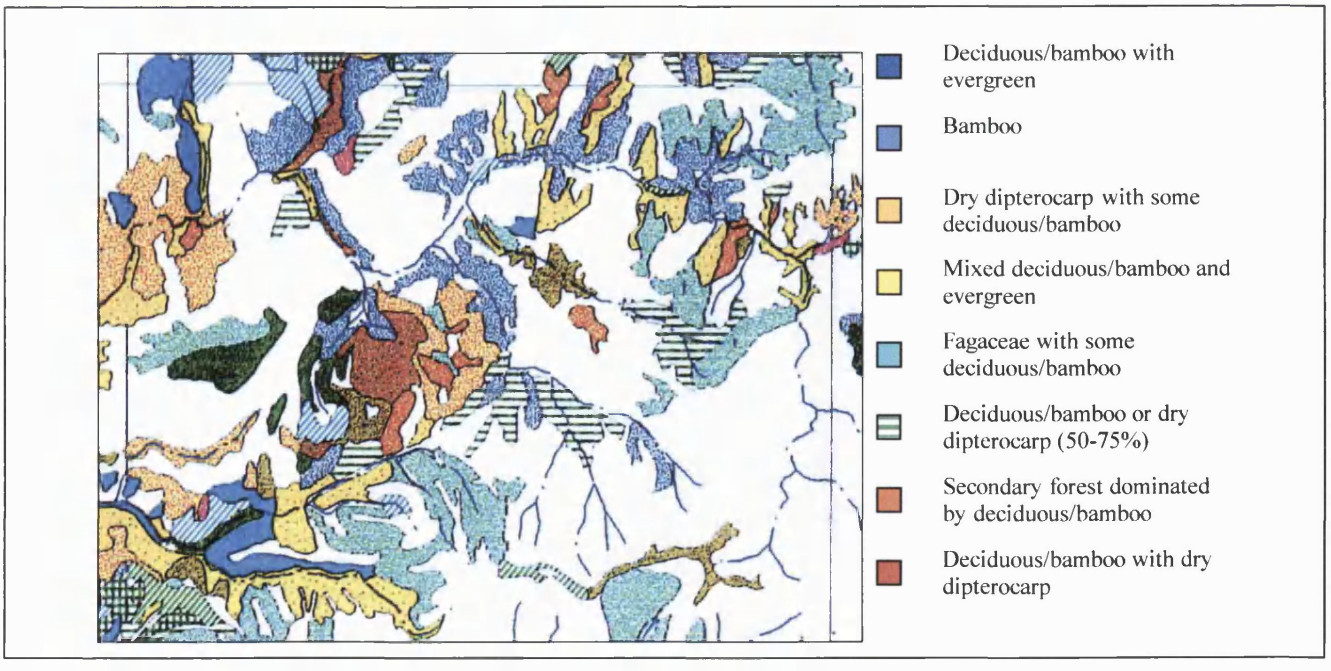
complicate the use of canopy cover as an indicator for biodiversity levels. While canopy cover might indicate the extent to which the forest is undisturbed, and, for forests of uniform species composition, then, reflect the level of biodiversity, comparisons of the canopy cover of forests of different species composition do not necessarily represent good indicators of disturbance of biodiversity levels. Distribution of forest species throughout the area (maps 7.5, 7.6, 7.7 and 7.8) all indicate that the species composition of the different areas varies significantly. For instance, comparing the areas of residence of the 'Big spirit' to the north and south of the village, each of the maps indicate that these areas vary in their species composition. The area to the north being composed of dry dipterocarp, deciduous and bamboo species; the area to the south being composed of a mixture of these, but also fagaceae and evergreen species. Comparison of the canopy cover for these two areas is, then, not comparing like with like.

A possible alternative measure of the levels of biodiversity of the forest is the maturity of the forest cover (map 7.9). Forest maturity, however, once again shows only little relation with the location of spirit residence. While a large proportion of the spirit areas is composed of mature forest cover, they also include pockets of immature forest cover,

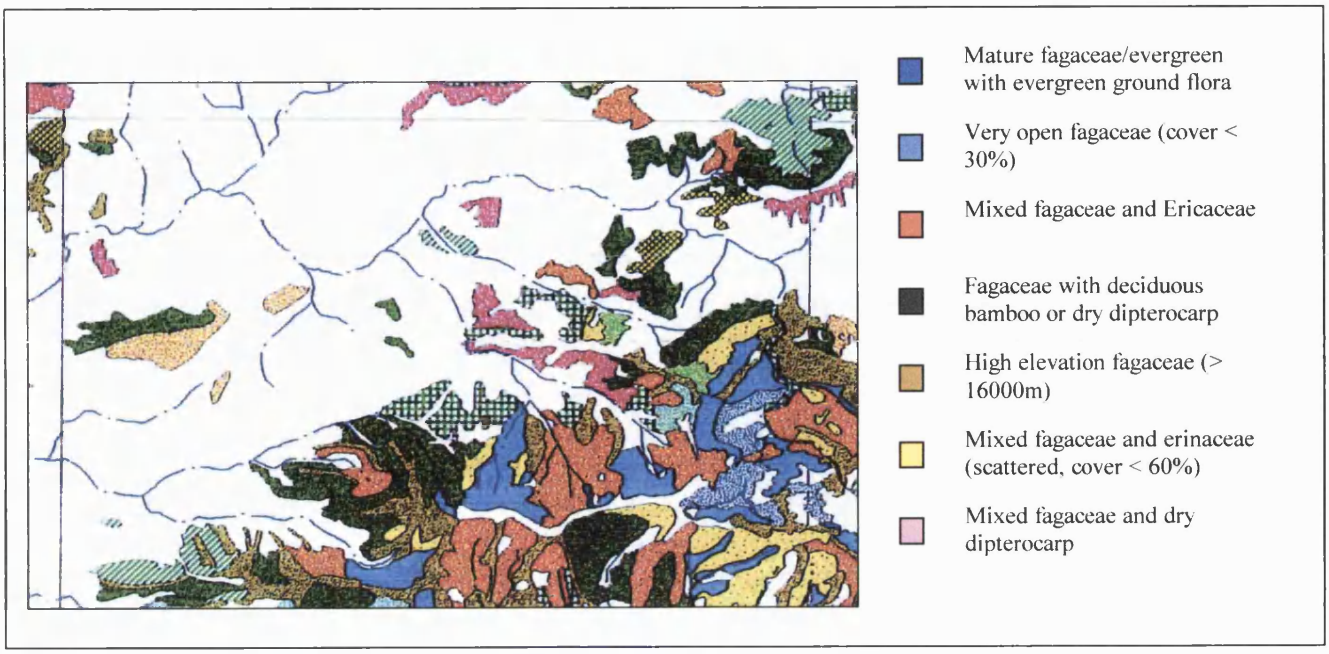
Map 7.5 Dry dipterocarp forest tones in Mae Paa Sao,



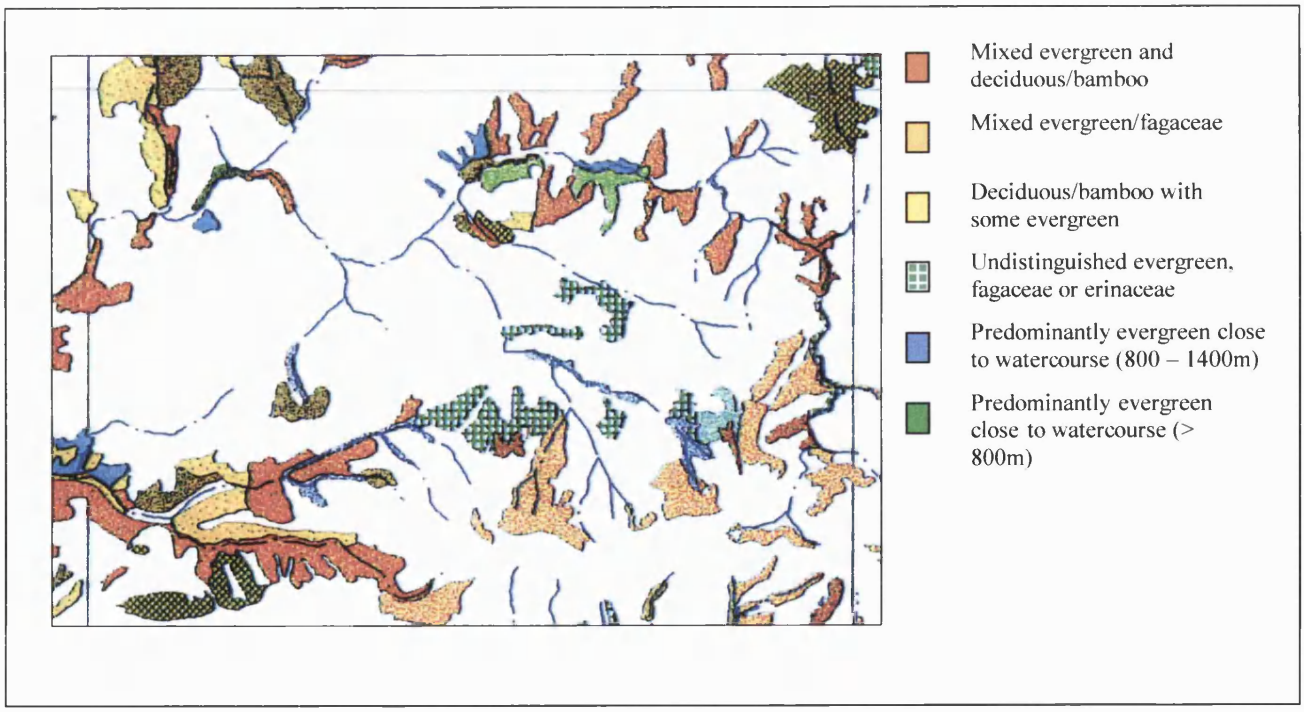
Map 7. 6 Deciduous/bamboo forest tones in Mae Paa Sao.



Map 7.7 Fagaceae forest tones in Mae Paa Sao.

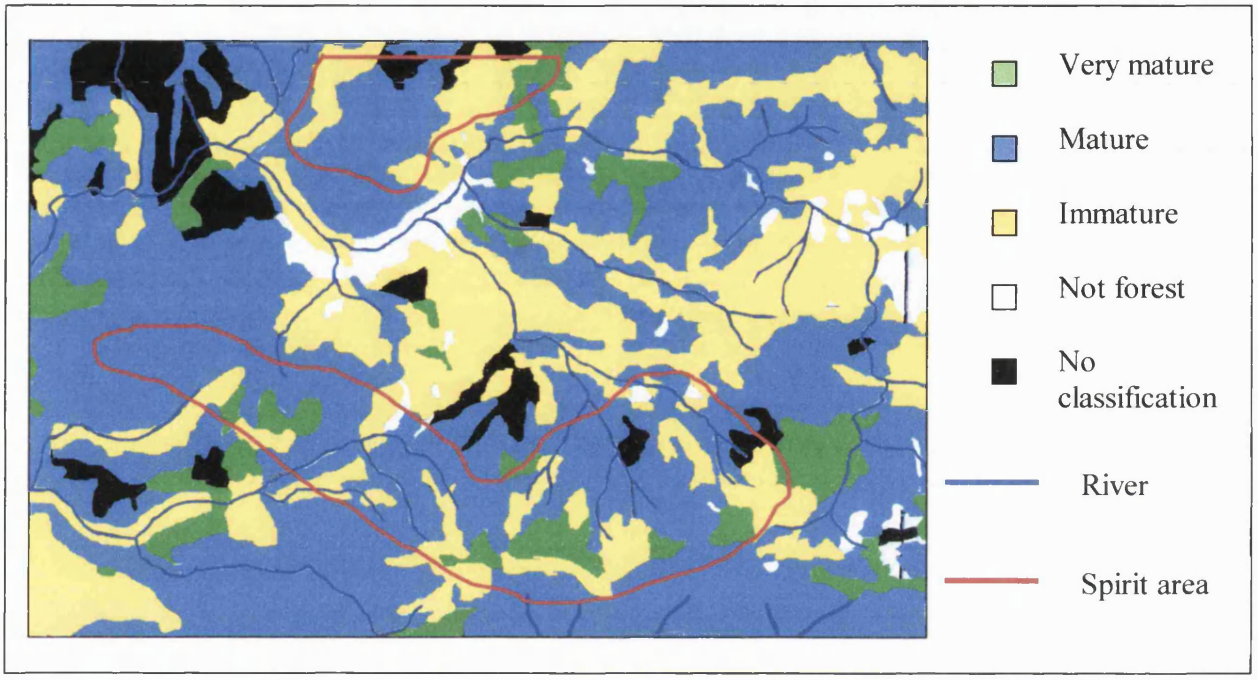


Map 7.8 Evergreen forest tones in Mae Paa Sao.



and other areas not inhabited by spirits also possess mature forest cover. That is, it can be said that the areas of spirit residence are composed of relatively mature forest cover, but that the mature forest cover is not entirely related to the presence of the spirits.

Map 7.9 Forest cover maturity in Mae Paa Sao.

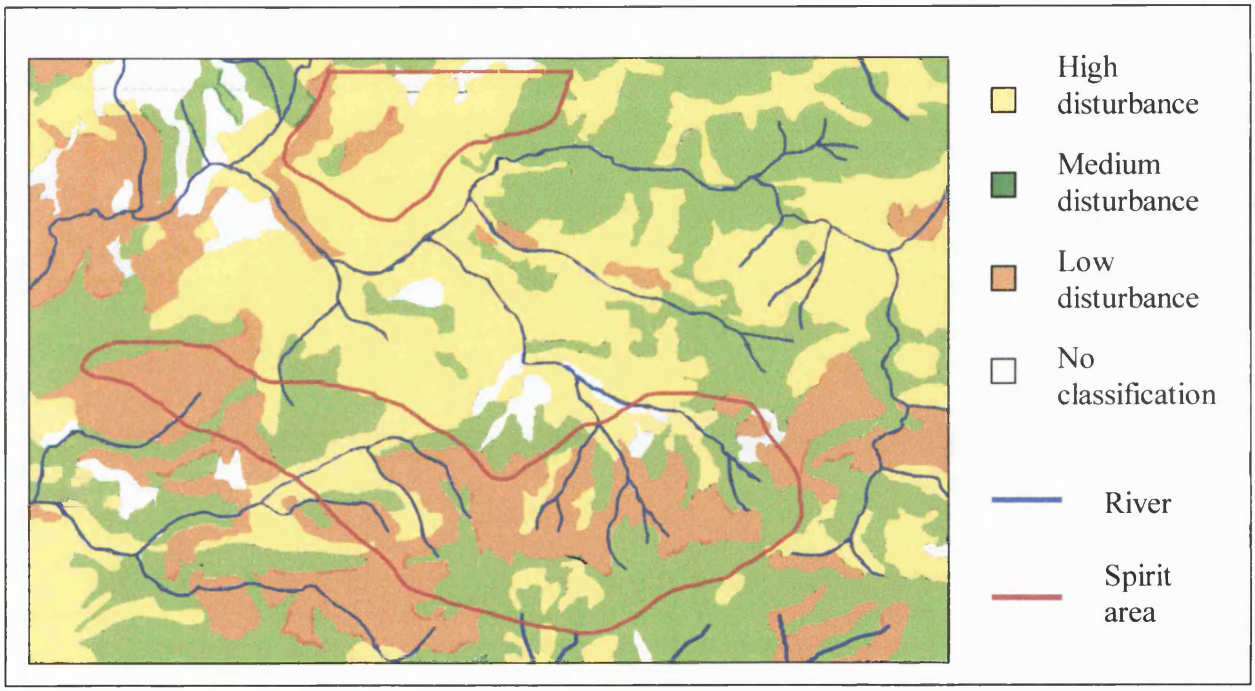


The use of forest cover maturity as a measure of the relationship of spirit beliefs and biodiversity levels not only faces the same species distribution problem as the canopy cover measure, but also the problem that forest cover maturity can be influenced by factors other than the beliefs and actions of the villagers. Other determinants of forest maturity beyond the control of villagers include the soil conditions, the gradient of the land, and exposure to sunlight, to name but a few, which will influence the ability of species to colonise an area, as well as their growth rate. In order to relate the beliefs and biodiversity levels, a measure of the interaction of the villagers and the forest is required. A potential indication of such interaction is provided by the degree of disturbance of the forest cover (map 7.10).

The large part of the area of residence of the 'Big Spirit' to the south of the village shows only low disturbance. The remainder of which consists of forest of medium

disturbance with pockets of highly disturbed forest. It could be the case, then, that the belief that spirits reside in this area of the forest relate to the villagers use of the forest. However, the corresponding area of spirit residence to the north of the village is composed predominantly of high disturbance forest. Moreover, there are other pockets of little disturbed forest outside of the areas of residence of the spirits. Once again, then, there would seem to be an inconsistency in the relationship between the spirit beliefs and forest interaction of the villagers.

Map 7.10 Degree of disturbance of forest cover in Mae Paa Sao.



7.8 Discussion

The analysis attempted provided little cause to think there might be a relationship between biodiversity levels and Karen spirit beliefs. Despite the much quoted sustainability of the Karen's interaction with the forest (s. 7.5, also s. 9.4), the belief system thought to underlie such interaction displays little correlation with the disturbance observed to forest resources. Whether we can conclude from this result that the belief systems of the Karen are actually less sustainable than commonly thought would depend not only on the reliability of the investigation performed, but also on the relative merits of the Karen and ecological understanding of the environment, exactly

the issue that concerns us here. In the light of the purpose of this investigation, such a result could be interpreted as implying the disparity of indigenous and scientific conceptions of the factors contributing to the functionality of ecosystems. However, there are a number of methodological issues that require consideration before this conclusion can be made.

Firstly, a number of possible alternative explanations of forest cover disturbance require eliminating before such a result can be confirmed. For instance, many of the villagers complained at the encroachment into and degradation of the forest by neighbouring tribes less responsible in the conservation of the forest. However, no figures are available as to the extent and location of such encroachment. Moreover, attempts at establishing the relationship between spirit beliefs and biodiversity require that such beliefs play an active role in the day-to-day lives of the villagers. Although to the best knowledge of the author this is the case, the beliefs described (s. 7.5) are traditional systems of belief, which are increasingly under pressure to change from the encroachment of modernity (s. 9.3.3). However, there remains the problem of the distinction between ideology and action referred to in chapter 6. Another possibility that would require eliminating is that the disturbance identified was the result of natural processes, such as storms. While during extensive discussions with the villagers concerning various aspects of their local forest resources no such impacts were identified, the collection of such information was not the direct intention of the interviews undertaken.

Secondly, it is assumed that the comparisons made reflect such indigenous and scientific conceptions of ecosystem functionality when the possibility that this is not necessarily the case requires entertaining. For instance, on the one hand, an assumption is made as to the relationship between the Karen's spirit beliefs and their conceptions of functionality. On the other hand, there is also some doubt as to the relationship between biodiversity levels and the resilience of ecosystems (s. 7.4). Moreover, there is some doubt as to the use of forest cover, maturity of forest cover, and disturbance to forest cover indicators as measures of biodiversity levels. To the extent that biodiversity can be considered a determinant of ecosystem resilience, it measures the ability of ecosystems to sustain their functionality in the face of disturbance. However, there is more than this to the relationship between disturbance and biodiversity. Disturbance is

not merely something the reaction to which is determined by biodiversity, as the extent of disturbance is also significant in the determination of the number of remaining species and the level of biodiversity. Improvements in the above investigation could, then, be made through the incorporation of a more detailed discussion of the relationship between biodiversity levels and the surveys of forest resources used.

Thirdly, inaccuracies have to be allowed for in the topographical description of Karen spirit beliefs, the elicitation of which took the form of villagers' descriptions according to local landmarks (s. 7.6). Inaccuracies in the interpretation of descriptions such as "half way up the mountain, below the residence of the 'Big Spirit'" may well account for discrepancies in any relationship between spirit location and forest resource description. Add to these problems of interpretation the inconsistencies in villagers' descriptions of such areas, and inaccuracies will inevitably result.

Barring these possibilities, the notion that there exist commonalities in the conception of nature and, hence, that direct perception contributes to the development of these conceptions, as well as the scientific realist conception of knowledge development are called into question. However, it would be rather hasty to interpret this result as implying the outright rejection of the role of direct perception in the development of conceptions. The acceptance of the role of direct perception merely "allows" for similarities in 'realities'. That is, it provides the possibility rather than the necessity of commonalities in conceptions of nature. Another way of expressing this is that both scientific realism and direct perception acknowledge the fallibility of knowledge (s. 6.5.2). Thus, although commonalities are predicted, the divergence of conceptions does not entirely contradict scientific realism or direct perception. The possibility of unactualised potential and the context dependent nature of knowledge development emphasised by the direct perception approach (s. 6.5.2) both support this argument. The contexts of interest of the scientist and the indigenous tribesperson could hardly be more different, and the environment is very much a complex, open system.

Rather than dismissing the role of direct perception and the existence of necessity in the conception of nature outright, in the context of attempting to improve our understanding of conceptions of nature, a more appropriate interpretation of this result would be to highlight the lack of detail in the relation between direct perception and conception. The

decision to compare conceptions of ecosystem functionality was made purely on the basis of the emphasis placed on this notion by the subject matter of ecology. What is required is an elaboration of the process of conceptual development so that more might be known about the nature of direct perception and, hence, what conceptual commonalities might be expected to emerge from the interaction with the environment. As it is, there is currently little guidance as to the commonalities that might be expected to be observed.

A number of features of the natural environment should be considered in determining the degree to which direct perception might be able to accurately provide the "raw materials of sensation" upon which similar realities might emerge, and the extent to which characteristics of the environment might be beyond the assimilatory capacity of human perception. Firstly, the complexity of the ecological processes involved may exceed perceptual capacities. That the contributory factors to ecosystem functionality is still an issue of some contention even to scientists who devote their working lives to its study demonstrates the limitations of our perceptual capacity (s. 7.4). Secondly, the time periods involved in ecological dynamics diverge from those which humans are 'programmed' to think in. That is, natural selection has programmed people mostly to thinking in physiological time, our minds focus on issues that matter across time scales of hours, days, or at the most, a hundred years, while ecological time spans centuries and millennia (Wilson, 1984). The limitations of human cognitive capacity provides room for 'mistakes' in our perception of the environment that may reduce the possibility of commonality.

Further research is therefore required to consider the questions relevant to the elaboration of the role of direct perception in the development of our conceptions. To what extent does direct perception determine conception and how might it interact with alternative sources of conception, such as innate tendencies, or cultural constructs? In terms of the language used by Ingold in his exposition of the role of direct perception, direct perception is the "raw materials" of sensation, which, carried over to the domain of social relations, yield the cultural construction of conceptions of nature. However, we are now required to ask: What form do these materials take, and how are they arranged in forming conceptions?

7.9 Summary: The objectivity of environmental values.

Part II of this thesis has attempted to approach the question of the objective validity of environmental citizen values. In summary, it is suggested that, although recent trends within the philosophy of science literature would tend to favour the subjectivity or relativism of knowledge, there is still room within the debate for the possibility that knowledge possesses at least an element of necessity or objectivity. While neither of the empirical attempts to identify such necessity within knowledge of the environment or the way the environment is valued proves entirely conclusive, there is some reason to at least reserve judgement until further evidence is available. Although there is little evidence of commonalities between ecological science and Karen spirit beliefs, this does not necessarily contradict the scientific realist perspective that supports necessity in knowledge development. Moreover, the investigation in Chapter 4 did suggest the existence of commonalities in environmental preferences.

Furthermore, the literature reviews of causes of deforestation (s. 7.2), commonalities in tree symbolism (s. 7.3), Biophilia (s. 4.2.1), and the classification of biological kinds (s. 4.2.3) all support the notion of commonalities in conceptions of nature. However, against this positive evidence needs to be set the literature supporting a relativistic explanation of environmental preferences (s. 4.3.2), as well as the fact that some of the frameworks developed in the above investigation might be considered novel (the adaptation of Piaget's genetic epistemology in chapter 4) or contentious (direct perception's rejection of mainstream anthropology).

In Part III we leave the question of the objectivity of environmental norms and turn to the other question comprising the subject matter of this thesis: whether norms can be incorporated into individual benefit functions.

PART III

Can moral norms be incorporated into individual benefit functions?

This part of the thesis addresses the question of whether morals can be combined with monetary values. That is, can moral norms be represented within individual benefit functions? Or can norms be valued monetarily without agents experiencing ambivalence? In an attempt to answer this question the next chapter reviews some of the literature concerned specifically with attempts to incorporate such moral norms within economic valuation. Thus, although this issue encompasses the broad sweep of the social sciences, discussion will be restricted to arguments specifically concerned with incorporating norms within the neoclassical paradigm.

Identifying criticism of economics in the context of behaviour motivated by morality as being targeted against the assumption that agents are self-interested, a brief review of the development of rational choice theory is presented to argue that the adoption of the assumption of self-interestedness within economics results from confusion of the definition of utility espoused by modern economics. It is suggested that the standard criticisms of economics are misplaced as they misinterpret the axioms of economics as including the requirement that agents be self-interested. Instead it is argued that the axioms of economics are concerned not with the content of preferences but with the structure of preferences. Specifically, it is assumed that values have a teleological structure: that they constitute an ordering. Thus, the question of whether morals can be incorporated within economic valuations is reframed as: Is morality characterised as having a teleological structure?

Chapter 9 attempts to empirically investigate this question using the Contingent Valuation Mechanism (CVM) to elicit willingness to pay for the conservation of forest resources in northern Thailand. It is suggested that the commensurability of citizen and consumer values in the context of environmental valuation can be investigated through consideration of the forms of response to Contingent Valuation (CV) surveys and the motivations underlying them. It is argued that if ethical norms are indeed of a qualitatively different form to economic preferences – if they are non-teleological – then

respondents will experience ambivalence when asked to value them monetarily within a CV survey, and will protest at being asked to do so. On the other hand, if ethical norms and economic preferences share a teleological structure, their monetary valuation will not elicit such ambivalence or protests. The results obtained suggest that morality has a teleological structure and is commensurable with economic preference. However, it is argued that in drawing such a conclusion; that is, in analysing the structure of belief/preference; assumptions must be made regarding belief and preference, thus undermining the validity of the conclusion.

Chapter 10 briefly outlines developments within the field of economic methodology to suggest that the problem suffered in testing the claims of economics in chapter 9 is a more general criticism laid at the feet of economics. That is, from the application of causal theories to the explanation of social behaviour there arise fundamental epistemological problems. Thus, in summary, it is suggested that, before the issue of whether moral norms can be incorporated within individual benefit functions can be resolved, fundamental epistemological issues require further consideration. The debate remains open.

8. Utility, moral norms, and the neoclassical economic framework.

8.1 Introduction

As a way of introduction to the question of whether moral norms can be incorporated into economic valuations or valued monetarily without agents experiencing ambivalence, this chapter reviews some of the literature concerning the validity of incorporating moral values within economic valuation.

It is important at the outset to distinguish the moral norms of concern here from the notion of altruism. As discussed in chapter 2, it has been argued that altruism can be considered within a utilitarian context and incorporated within individuals' utility functions by simply attaching a more abstract meaning to preferences – agents are said to prefer something in the sense that they would choose it in preference to other things (s. 2.6). Morality on the other hand is less easy to incorporate within individual utility functions, as it is argued that morality is qualitatively difference to altruism, being more than simply a manifestation of people's preferences.

It is one thing to say what morality is not. However, it is an entirely more demanding task to define what it is we mean by morality. It is hoped that this issue will be further elaborated throughout the discussion undertaken in this chapter. In the meantime, we simply mirror the thoughts of Etzioni (1988: 41 – 42):

> An investigation of the relevant literature leads one to the not surprising conclusion that philosophers, after being at it for many hundreds of years, have yet to produce a fully satisfactory definition of what is moral. Without attempting here to review the immense literature on the subject, the different approaches, and the difficulties that each encounters, we suggest that for the purposes at hand it suffices to consider moral acts as those that meet four criteria: moral acts reflect an imperative, a generalisation, and a symmetry when applied to others, and are motivated intrinsically.

And Elster (1989: 99 – 100):

> Rationality is essentially conditional and future-oriented. Social norms are either unconditional or, if conditional, are not future-oriented. For norms to be *social*, they must be shared by other people and partly sustained by their approval and disapproval. They are also sustained by the feelings of embarrassment, anxiety, guilt and shame that a person suffers at the prospect of violating them. A person obeying a norm may also be propelled by positive emotions, like anger or indignation. [Moreover] social norms offer considerable scope for skill, choice, interpretation and manipulation. For that reason, rational actors often deploy norms to achieve their ends. Yet there are limits to the flexibility of norms, otherwise there would be nothing to manipulate.

We start our discussion with a review of the development of utility theory within economics (s. 8.2). It is suggested that, although neoclassical economics finds its origins in the utilitarian moral philosophy, the inception of modern economics at the end of the 19th century saw rational choice theory adopt a definition of utility subtly but significantly different from that in utilitarianism. Specifically, economics adopted the conception of utility as preference satisfaction, while the classical utilitarian conception of utility identified a valuable tendency in an object. It is suggested that the standard critique of economics – the contradiction of the assumption of self-interested agents and the existence of morality – only arises when economists try to reconcile their conception of utility with that of their utilitarian antecedents (s. 8.3). That is, in order to uphold this position economists are required to present an extreme version of self-interestedness. The standard critique of this self-interest assumption in the form of imprudence or limits to rationality (s. 8.3.1) and the existence of moral norms (s. 8.3.2) are then briefly reviewed.

In response to the standard critique, economists are observed to conceive morality in terms consistent with self-interestedness (s. 8.4). Such endeavours generally run into problems, and attempts to reconcile economics with actions motivated by morality turn outside the utilitarian moral framework: for instance, the dual preference function model of Sen and Etzioni, which is founded upon a deontological moral philosophy (s. 8.5).

However, it is argued that the notion that self-interestedness underlies neoclassical economics is a misinterpretation. Instead, it is suggested that economics is concerned not with the content of preferences but with the structure of preferences (s. 8.6). That is, rational choice theory merely claims that preference must constitute an ordering if choices are to be rational.

The question of whether morals can be incorporated within economic valuations is thus reframed as whether morality can be considered to be characterised as having a teleological structure (s. 8.6): that is, whether economics is disturbed by morality depends whether the structure of morality is consistent with that of economic theory, that is teleological. It is only if morality is non-teleological that the claims of Sen and Etzioni are correct and radical change at the deepest foundations of economics is required. On the other hand, if morality can be considered teleological, the existence of moral values is entirely consistent with the behavioural assumptions of neoclassical economics.

8.2 Homo Economicus: A brief history of the economic conception of human action.

Explanations and predictions in the social sciences turn on the understanding of the origins of individual action. It is the form of economists' presuppositions regarding the origins of individual action that distinguish them from other social scientists. Economics proceeds by formalising commonsense explanations of action into a theory of rational choice. The modern theory of consumer behaviour within economics starts from the notion of 'consumer preference'. By imposing 'rationality' conditions on these, the theory of choice is obtained:

> A utilitarian, rationalist, and individualist paradigm. It sees individuals as seeking to maximise *their* utility, rationally choosing the best means to serve their goals. They are decision making units; that is, they render their own decisions (Etzioni, 1988: 1).

One of the main developments in the modern conception of rationality in economics is thus the notion of rationality as utility maximisation (Cudd, 1993). The idea that rationality is utility maximisation is the idea that rational agents represent their desires

in utility terms, and rank their options in order to find the best way to satisfy most of their desires. This requires first that we see rationality as a kind of calculation, in particular a maximisation, and second that the maximisation has to do with getting what we desire as expressed in utility terms (Cudd, 1993). Additionally, it assumes that rationality is a capacity inherent primarily in individuals, not in groups.

The utilitarians pursued the notion that diverse desires might be measured on a *single scale* and thus compared with each other and with the desires of others. Jeremy Bentham's idea was that to determine what ought to be done one could compare different courses of action according to the pleasure or pain persons derived from them, and he combined the measures of pleasures and pains to form a single sum of happiness, the "hedonic calculus". He argued that ultimately the sum of pleasure and pain is the motivation for all actions.

"Utility" in plain English means *usefulness.* Bentham specialised the meaning to a particular sort of usefulness: "the property in any object whereby it tends to produce benefit, advantage, pleasure, good, or happiness [...] or [...] to prevent the happening of mischief, pain, evil, or unhappiness to the party whose interest is considered" (1823: 2, quoted in Broome, 1991: 1). The "principle of utility" is the notion that actions are to be judged by their usefulness in this sense: their tendency to produce benefit, advantage, pleasure, good or happiness (Broome, 1991). Haslett (1990) refers to this model of personal utility as the *experience* model. According to all versions of the experience model, personal utility is defined in terms of having certain experiences – that is, certain mental states or states of consciousness, such as pleasure or happiness.

Before long, however, this version of the utility model was found wanting. Among the objections to it are that it restricts what may be said to constitute personal utility too narrowly, since pleasure and happiness are not the only experience that may be said to be of value (Haslett, 1990). For instance, the experience of doing something worthwhile for someone else may not, strictly speaking, be accurately describable as "pleasure" or even "happiness", yet these experiences are nevertheless of value. As John Stuart Mill famously said, it may be better to be Socrates dissatisfied than to be a pig satisfied.

In order to avoid this and other problems with the experience model, many philosophers, and most social scientists, have adopted the *preference* model of utility (Haslett, 1990). According to the preference model, utility is preference-satisfaction; the greater the number and strength of a person's preferences that are satisfied, the greater that person's utility. This model seems to avoid most of the major objections to the experience model (Haslett, 1990). For instance, many versions of the preference model place no restrictions on the preferences, the satisfaction of which supposedly increases a person's welfare, thus overcoming concern that the experience model restricts what is in a person's interest too narrowly.

Hence, later utilitarians abandoned the hedonic hypothesis that pleasure and pain were the only ultimate motivation for actions, but still maintained that ends could be compared on a single scale by how strongly persons desired them. This severed utility theory's connection to happiness that Bentham had postulated. At this point, utility theory was linked to moral and political theory, but not by way of rationality as it is now. The greatest happiness principle of the utilitarians holds that the right action in any given circumstance is the one that maximises the happiness of all. This is not a matter of rationality, but of the Good (Cudd, 1993). It was only within economics that "utility" came to be associated with rationality.

The notion of "utility" entered economics in 1873, with the publication of W. S. Jevons's *Theory of Political Economy* (Broome, 1991). However, economists shifted the meaning of "utility". The word came to refer, not to the tendency of an object to produce good, but to the good an object produces (Broome, 1991). That is, by a person's utility, economists came to mean not the person's usefulness in promoting good but their own good. Broome (1991) illustrates how initially economists correctly adopted the notion of "utility" from philosophy, and how subtle but important misinterpretations changed its meaning from usefulness in yielding pleasure to identifying such pleasure with utility itself. Hence, the marginal revolution in the 1870s – in Austria with Carl Menger, in Switzerland with Leon Walras, and in England with W. S. Jevons – introduced a new model of microeconomic behaviour in which agents are assumed to be rational and to be concerned with subjective desires. By rationality they meant agents act to maximise their subjectively given utility subject to their budget constraint (Cudd, 1993). Whereas it had traditionally been associated with a valuable

tendency in an object within utilitarianism, as it was adopted by economics, utility had became synonymous with preference.

The final step in making this economic theory into an explicit theory of rational choice was to deduce utility functions from a set of axioms describing rationality in preferences and actions and to couple this with the principle that rationality is utility maximisation (Cudd, 1993). That is, a set of conditions required if a numerical utility function is to apply to agents' preferences must be determined. Moreover, in taking this final step, economics reinforced the confusion over the meaning of utility (Broome, 1991). The axiomatic theory sets out from a person's preferences. It proves that, provided these preferences conform to some axioms, they can be represented by a "utility function". The sense in which the function represents the preferences is this: of any pair of alternatives, the function assigns a greater utility to the one that is preferred. "So "utility" acquired the meaning: *the value of a function that represents a person's preferences*" (Broome, 1991: 3).

It is the axioms from which utility functions are derived that define the faculty of rational economic man, *homo economicus*, and which are available in most contemporary microeconomic textbooks. Agents are assumed to have available a set of mutually exclusive actions, the choice between which will have consequences defined by a set of exogenously given preferences, the satisfaction of which provides utility. Specifically, the axioms that define the rational agent in neo-classical theory are a quiet attempt to characterise consistency in preferences (O'Neill, 1998: 168):

> The rational economic agent is assumed to have preferences that are complete, i.e. agents can express preferences over any and all goods; reflexive, i.e. every good is as good as itself; and transitive, i.e. such that if X is preferred to Y and Y to Z then X is preferred to Z. The rational economic agent, thus defined, is assumed to be concerned to maximise the satisfaction of a set of preferences, the 'utility function' in neo-classical jargon, under the constraint of a finite budget.

Although the marginalists originally intended their theory to account only for choices in the economic sphere, their intellectual descendents, especially Ludwig von Mises and

the Chicago School, in particular Gary Becker (1976b), expanded it to all contexts of human behaviour, for example, crime, education decisions, and the family (Cudd, 1993).

8.3 Criticisms of homo economicus: ethics and the invisible hand.

> Belizeans often say "The higher the monkey climb, the more he exposes his ass". Neo-classical economics has climbed about as high as is possible for a social science, and it has therefore attracted a crowd of critics (Wilk, 1996: 64).

The criticisms of the economic conception of human action are legion and beyond the scope of this one section. Thus, the focus here will be on critiques internal to the discipline of economics. However, it should be pointed out that what follows is by no means intended to represent a comprehensive review of such internal critiques. Moreover, it should be remembered that a broader critique of the conception of man and the explanation of behaviour employed within economics is available within other fields of the social sciences: in particular, in the sociological tradition emerging from the work of Emile Durkheim and Karl Marx, and in the various positions within what Wilk (1996) refers to as "moral economics", including the work of the likes of Max Weber, Bronislaw Malinowski, Franz Boas, Ruth Benedict, Glifford Geertz, and Marshall Sahlins[59].

Problems arise with the economic definition of utility as preference when one asks: of a pair of alternatives, is the one that a person prefers necessarily the one that is better for them? According to the official economic definition of choices, it has greater utility. A person's utility, as it is officially defined within economics, has nothing to do with "good". However, attempting to maintain the spirit of utilitarianism, many economists adopt the official economic definition of utility as *preference*, while at the same time using the word to stand for a person's *good* (Broome, 1991). Because an alternative preferred by a person is defined as having a higher utility, they take it for granted that it must be better for them. That is, they suppose that a person is rational and always

prefers what is better for them (Broome, 1991). To do so is to suggest that a person is "self-interested" in a very strong sense. It rules out not only altruism, but also imprudence. It is suggested here that the criticism aimed at neoclassical economics tends to reflect this strong notion of "self-interested".

8.3.1 Human limitations on rationality.

One of the possibilities ruled out by the "strong" conception of a person's self-interest evoked by neoclassical economists in the defence of their position is that people will act imprudently. Thorstein Veblen (1898: 73) eloquently satirises this assumption:

> [Economics presumes man to be] a lightening calculator of pleasures and pains, who oscillates like a homogenous globule of desire and happiness under the impulse of stimuli that shift him about the area, but leave him intact.

Veblen's statement implies that it is difficult to accept that all social life can be adequately explained using the economic model and that one reason for this is the limitations of individual rationality.

Formal tests of economic theories of individual choice go back at least as far as L. L. Thurstone (1931), who used experimental techniques common in psychology to investigate whether the indifference curve representation of preferences could coherently organise individuals' choices [he concluded that it could]. Von Neumann and Morgenstern's (1944) Expected Utility Theory made more pointed predictions which allowed more powerful tests. In particular, Allais (1953) identified systematic violations of utility theory. There have since been hundreds of experiments designed to further explore systematic violations of utility theory, and of the alternative choice theories that have been proposed to account for various parts of the experimental data. Camerer (1995) gives a comprehensive survey.

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[59] The difference between these different models of human behaviour is one that is already well rehearsed within the literature (see Wilk, 1996).

Much of the critique of *homo economicus* originates in Herbet Simon's notion of 'bounded rationality'. Examining the limitations of human reasoning power in complex decision making environments, Simon concluded that:

> The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objective rational behaviour in the real world – or even for a reasonable approximation to such objective rationality (Simon, 1957: 198).

Simon (1979) suggests employing the concept of substantive or procedural rationality. This can be used to distinguish between the rationality of a decision – results of a choice – considered independently of the manner in which it is made, and the rationality of a decision in terms of the manner in which it is made. Neoclassical economics rests on two fundamental assumptions. Firstly, that the economic actor has a particular goal, for example, utility maximisation. Secondly, that the economic actor is substantively rational. Simon (1979: 81 – 82) pointed to laboratory demonstrations of human failure to follow the canons of substantive rationality:

> The human mind is programmable: it can acquire an enormous variety of different skills, behaviour patterns, problem-solving repertoires, and perceptual habits. Which of these it acquires in any particular case is a function of what it has been taught and what it has experienced. We can expect substantive rationality only in situations that are sufficiently simple as to be transparent to this mind. In all other situations, we must expect that the mind will use such imperfect information as it has, will simplify and represent the situation as it can, and will make such calculations as are within its power. We cannot expect to predict what it will do in such situations unless we know what information it has, what forms of representation it prefers, and what algorithms are available to it.

As an alternative model of behaviour, Simon (1957) proposed the 'satisficing' principle: individuals try to attain acceptable levels of welfare. The term is an integration of 'satisfaction' and 'optimising'. Based on the limited human brain capacity, 'satisficing'

accepts that the transactions costs of information gathering in economic decision making are prohibitively high, and reflects a cost-minimising or cost effective approach that takes account of this (van den Bergh *et al.*, 2000).

Following in Simon's footsteps, Tversky and Kahneman (1991) showed that the human brain is an imperfect decision-making tool, even when faced with relatively simple problems of choice, while Elster (1990a) questioned the whole notion of human behaviour as decision-making. He pointed out that many actions are taken without a clear goal, with no knowledge of the consequences, and because it is easier to conform than to choose. That is, people have no objective basis for making decisions, cannot rank preferences, and make no decision at all or make the wrong choice. May (1954) points to observations of actual behaviour that reject the transitivity of preferences. Van den Bergh *et al.* (2000) identify evidence that suggests individuals are less free-riding than predicted on the basis of neoclassical theory. They suggest that this can be explained by 'other-regarding' and reciprocal fairness.

8.3.2 Ethics and the invisible hand.

The second possibility that the assumption of self-interested rationality rules out is that people act according to social norms. That is, microeconomic theory is based on what we do as isolated consumers, but it can say little about what we do as political citizens with ethical concerns (van den Bergh *et al.*, 2000). In *The Moral Dimension*, Amitai Etzioni (1988) claims, as did Albert Hirschman in *Morality and the Social Sciences* (1980), that people often act from moral motives, that economics needs to recognise this, and that it will be significantly changed by doing so. Etzioni (1988) tells us that moral acts are a source of value other than pleasure:

> *Indeed, many are explicitly based on the denial of pleasure in the name of the principle(s) evoked.* Doing penance, abstention from premarital sex, and Ramadan fasting are not what most people consider sources of pleasure (45).

Thus, while acting in line with one's moral values produces a kind of satisfaction, a sense of moral worth, Etzioni (1988) argues that this value differs qualitatively from

that achieved through, for example, consumption, as adhering to morals provides a sense of affirmation, of having done what is required, and re-establishing one's values. Hence, the value achieved through acting in accordance with moral norms differs qualitatively from that generally associated with economic valuation: that attained through the satisfaction of preferences.

John Elster (1990b: 49) presents a number of example of instances of decision-making in which norms are at work rather than self-interest:

> Consider a firm that has reached a wage agreement with its workers. If wages are paid at the end of the production period, the following game arises. At the beginning of the period, workers have the choice between working and not working. If they decide to work, the firm has the choice, at the end of the period, between paying them the agreed-upon wages and not paying them. If this were all there was to the story, it is clear that a rational, selfish management would decide not to pay them and that rational workers, anticipating non-payment, would decide not to work. Any promise of payment that the firm might make would lack credibility. As a consequence, both the firm and the workers would end up worse off than if the promise of payment had been credible.
>
> One restraining principle could be the code of honour. If people pursue their selfish ends subject to the constraint of not telling lies or breaking promises, more cooperation can be achieved than if lies are made and promises are broken whenever it seems expedient.

While the actions of both workers and management in this example could well be explained in a manner consistent with economic self-interest by simply defining this interest in the context of a repeat game, there is no doubt that norms, such as codes of honour and trustworthiness, influence our decision making. Indeed, it is often recognised that the market economy, the ultimate utilitarian institution, depends for its existence on values and commitments that are not tradable, as many writers including John Ruskin (1866), Fred Hirsch (1976), and Joseph Schumpeter (1976) have

repeatedly emphasised. As Kenneth Arrow (1974: 23) remarks on the notion of trust: "If you have to buy it, you already have some doubts about what you've bought".

With the inception of political economy in the eighteenth century, the emphasis was placed on the reduction of moral values to a cost calculus – the reduction of 'use values' to 'exchange values'. Hodgson (1997: 53) describes the reaction against this:

> Many critics complained of this degradation of worthy values such as duty, loyalty, chivalry and trust. Thus, in 1790 Edmund Burke wrote of the claims made for rational calculation of human affairs in the era of the French Revolution: 'the age of chivalry is gone – That of the sophisters, oeconomists, and calculators has succeeded'. Subsequently, and with similar sentiments, Thomas Carlyle describes political economy as the 'dismal science' which had professed a 'pig philosophy'. And the great romantic critic of utilitarianism William Wordsworth writes in King's College Chapel, Cambridge: 'high heaven rejects the lore of nicely-calculated less or more'.

O'Neill (1998) traces the criticism that neoclassical economics fails to consider actions motivated by morals to Aristotle's distinction between two forms of acquisition, the economic and the chrematistic, the former being characteristic of the household, the latter of the market. Economic acquisition, that of the household, considers acquisition only with respect to the object's primary use, as an object that satisfies a need. Chrematistic acquisition is concerned with the accumulation of the means of exchange, of currency. Moreover, while there is a limit to the accumulation of natural goods, namely the needs they satisfy, there is no limit to the acquisition of the means of exchange. Whereas exchange in the household is entered into only to acquire what is useful, the second form of acquisition becomes its own end. In making this distinction, Aristotle is drawing a contrast between an objective and proper conception of the good life and a misconception (O'Neill, 1998). That is, the household conception of economics is based upon the notion that economic life should be judged and organised according to a conception of the good.

O'Neill (1998) goes on to trace Aristotle's distinction between forms of acquisition to socialist critiques of the market; most notably in the work of Marx and Polanyi:

> The distinction at the heart of Marxian economics, between the use value and the exchange value of commodities, Marx explicitly takes from Aristotle. Likewise, Aristotle's distinction between economic and chrematistic acquisition is reintroduced in terms of the distinction basic to volume I of *Capital* between the circuit commodity-money-commodity from that of money-commodity-money. The model of communism set up in opposition to commodity producing societies is that of a household economy, an economy organised around the satisfaction of needs (O'Neill, 1998: 29).

And,

> In the work of Polanyi the influence of Aristotle's distinction between household and market is even more pronounced. The development of modern market society, the great transformation, is a story of the escape of the economy from the social and ethical limits [of social relations and human needs]. For Polanyi the aim of socialism is to make economic existence answerable to ethical goals in modern conditions (ibid.: 29).

However, the exclusion of moral values from the conception of decision making in economic models has long been recognised within economics itself. While the calculative impetus of economic science is aided by a utilitarian rendering of human motivations, classical economists such as Adam Smith and Thomas Malthus always find a place for 'moral sentiments' and higher human values. Moreover, Smith, Ricardo, and Malthus adopt and sustain Aristotle's distinction between 'use value' and 'exchange value' (Hodgson, 1997). John Stuart Mill, one of the founders of utilitarian moral philosophy underlying the neo-classical paradigm, writes of "economic man" that no "political economist was ever so absurd as to suppose that mankind are really thus constituted" (1844: 139; quoted in Hodgson, 1997: 49). Thus, despite the clear utilitarian traits in all their works, these classical economists are reluctant to pursue the logic of subjectivism to its limit and to establish a single measure of worth based on

subjective utility. It is only with the marginal revolution in the 1870s that the distinction between 'use value' and 'exchange value' disappears with William Jevons claim to have solved the 'paradox of value' by formalising a relationship between price and marginal utility (Hodgson, 1997).

While the start of modern Western economics as a discipline is usually traced to Adam Smith (1723 – 1790), it is wrong to attribute the modern conception of self-interested *homo economicus* to him. In *The Wealth of Nations*, Smith builds a powerful argument that the individual's self-interest generates society's best interest. People participate in the market because of their own self-interested desire to get the best return for their labour by selling it at the highest price. Each person's struggle to get the most value balances everyone else's. Wilk (1996: 47) argues that the effect of Smith's calculus is to "move moral issues [...] into the realm of logic, rationality, education, and science". However, the exact role of morality in Smith's work is not quite so clear cut, rather something that is still enthusiastically debated. Indeed, the controversy is so well established as to warrant the title *Das Adam Smith Problem*, and concerns the relation between the 'sympathetic' ethic contained within the *Theory of Moral Sentiments* on the one side, and the 'selfish' ethic of *Wealth of Nations* on the other.

In 1983, Hont and Ignatieff published a collection of essays that provoked much discussion within philosophy as well as economics on the issue of the place of morality in economics in general, and the work of Smith in particular, and challenge the conventional association of Smith with the notion of self-interest. In a paper within that collection, Hont and Ignatieff (1983: 24) point to the role of moral values within Smith's conception of the market economy:

> Yet if property must be absolute, how then were those excluded from the partition of the world to be provided for? Smith's answer to this question made reference to the distinction in natural jurisprudence between 'perfect rights', such as property, which were enforceable at law, and 'imperfect rights', such as charity, which was a moral duty incapable of legal enforcement. [...] The law had no business commanding men to be benevolent: in any case, benevolence must be freely given or else it was not a virtue at all. [...] Yet Smith believed, as did Hume, that even in a

> market society, pity and compassion towards the unfortunate would remain natural and unprompted motives of action.

Thus, self-interest was far from the only motivation underlying behaviour in Smith's work. Indeed, rather than being an accepted aspect of human behaviour, the possibility of self-interested behaviour was, for Smith, something that required justification:

> Far from being able to take 'economic man' for granted in their analysis, they had to explain his historical possibility as a psychological type. Only in commercial societies, with the emergence of a town-country division of labour, [...] had the purely privatised drive for the accumulation of commodities become the ruling principle of every individual (ibid.: 9 – 10).

Evensky (1993) argues that, while Adam Smith is usually remembered for his support of the notion that self-interest leads to the common good, he qualified this outcome with a number of conditions: that there is sufficient competition, and that most people in society had internalised a general moral law as a guide for their behaviour, implying that the efficient functioning of the economy relies upon ethical behaviour, that self-interest in a competitive economy is not sufficient to yield the common good:

> In Adam Smith's moral philosophy, the invisible hand has a much broader responsibility [other than the smooth functioning of the market system as a coordinator of autonomous individual choices in an interdependent world]: if individuals are to enjoy the fruits of a classical liberal society, the invisible hand must not only coordinate individual's choices, it must shape the individuals into constructive social beings – ethical beings (Evensky, 1993: 197).

That is, "the foundation of a success in creating a constructive classical liberal society lies in individuals' adherence to a common social ethic" (ibid.: 199). For the wheels of the "immense machine" that is human society to turn easily, there must be virtue. Moreover, as Smith's experience of commercial society grew, he became increasingly

sceptical about the ability of the invisible hand to guide society towards the moral ideal required to regulate interest for the attainment of the common good (Evensky, 1993).

Winch (1978) argues that the notion of Smith's espousal of the concept of *homo economicus*, and the consequent stereotype that has grown around the subject, is something that has emerged from nineteenth century interpretations of his work. However, a different interpretation can be found if one looks at eighteenth century debate. Thus, while Smith's notion that the motivation of self-interest is compatible with an optimal allocation of economic resources has been carried forward by economic discourse, the rest of the tale has been forgotten. "In Smith's story ethics is the hero – not self-interest or greed – for it is ethics that defend the social intercourse from the Hobbesian chaos" (Evensky, 1993: 204).

In a similar vain, A. K. Sen, in his *On Ethics and Economics* (1987), asks:

> How good an assumption is self-interest maximisation as a characteristic of actual behaviour? Does the so-called 'economic' man, pursuing his own interests, provide the best approximation of the behaviour of human beings, at least in economic matters? That is indeed the standard assumption in economics.

In his *Rational Fools* (1977), Sen suggests that "the nature of man in these current economic models continues [...] to reflect the particular formulation of certain general philosophical questions in the past. The realism of the chosen conception of man is simply not a part of this inquiry" (322). Challenging the economic conception of man, he states, "I would argue that the nature of modern economics has been substantially impoverished by the distance that has grown between economics and ethics" (1987: 7). Then, in the context of the above misconception of Smith's work that seems to have become the norm in the economic profession:

> Smith's attitude to 'self-love' has something in common with that of Edgeworth, who taught that 'economic calculus' as opposed to ethical evaluation, was particularly relevant to two specific activities, to wit, 'war and contract'. The reference to contract is of course precisely

> similar to Smith's reference to trade, because trade takes place on the basis of mutually advantageous contracts. But there are many other activities inside economics and outside it in which the simple pursuit of self-interest is not the great redeemer, and Smith did not assign a generally superior role to the pursuit of self-interest in any of his writings (1987: 24 – 25).

Sen criticises this misinterpretation of Smith and the promotion of the concept of self-interested agents:

> [The] reason why the conception of man in economic models tends to be that of self-seeking egoist [is that] it is possible to define a person's interests in such a way that no matter what he does he can be seen to be furthering his own self-interest in every isolated act of choice. [...] [T]hen no matter whether you are a single-minded egoist or a raging altruist or a class conscious militant, you will appear to be maximising your own utility in this *enchanted world of definitions.* (Sen, 1977: 322 – 323; emphasis added)

Sen's point is echoed by O'Neill (1998: 164):

> The assumption [that 'egoism' or 'self-interested' behaviour is universal] is not so much false as empty: the very concepts of 'egoist' and the 'self-interested agent' and those of the 'altruist' are contentless in themselves. Once content is added, it is either uncontentious and uninteresting, or it is contentious but false that they are so.

The promotion of the concept of the self-interested maximising individual by economics, as has been its misinterpretation of Smith's message, has been criticised as betraying moral values and producing "corrosive self-interest". Specifically, the application of the market mechanism is seen as reinforcing the very motivational aspects it assumes as being inherent in human nature. In turn, the promotion of such self-interest is seen as corroding the moral context of the community (Hirsh, 1976). If all value is derived from the satisfaction of individual wants, then there is nothing left

with which to restrain such self-interest, damaging the possibility of creating a cohesive society in which everyone can participate (Ormerod, 1994). It is this notion that caused John Maynard Keynes to write, "I do now regard the [Benthamite] tradition as the worm which has been gnawing the insides of civilisation and is responsible for the present moral decay" (1933: 445; quoted in Hogdson, 1997: 55). Hont and Ignatieff (1983: 8) identify a similar recognition of this corrosive quality of self-interest in the work of Smith when they state:

> It is notorious, from his contemptuous reference in the *Wealth of Nations* to the medieval lord's fascination for the 'baubles and trinkets' of trade goods, and from his sardonic strictures in the *Theory of Moral Sentiments* on men's passions for accumulating objects of 'frivolous utility', that [Smith] believed material prosperity was purchased, more often than not, at the price of a measure of what he himself called 'disception'.

And:

> In the last edition of the *Theory of Moral Sentiments*, [Smith] added a chapter which argued that 'the great and universal cause of the corruption of our moral sentiments' lay in the 'disposition to admire and almost to worship the rich and powerful and to despise or at least to neglect persons of poor and mean conditions'. [...] These material desires were insatiable because men judged their individual satisfaction in comparison to those higher or lower in the ranks system of an unequal society (ibid.: 9).

8.4 Reducing norms to self-interested optimising behaviour.

One of the defences employed by economists in the face of criticism of the role of behaviour motivated by morality in their models is to maintain the concept of "self-interestedness" that underlies the utilitarian basis of economics. That is economists have tended to argue that moral norms are consistent with the economic concept of self-interested preference. One such argument can be found in Robert Axelrod's (1984) *The*

Evolution of Cooperation. Axelrod suggests that norms of cooperation arise from indefinitely repeated plays of a two-person game. In such circumstances, individuals can find it to be in their own self-interest to cooperate with others, and such norms are sustained as long as people rationally appraise their own self-interest. However, Hodgson (1997: 52) argues that:

> This is a shallow and devalued concept of a norm, arising simply on the basis of an individual's own utility. There is no recognition that a moral norm – such as honesty, love or duty – may involve self-sacrifice and even transcend self-interest.

Elster (1989) asks the question: Can moral norms be reduced to optimising behaviour? In attempting to answer this question, he surveys attempts by economists to argue that social norms are nothing but instruments of individual or collective optimisation and thus to reduce norm-oriented behaviour to some type of optimising behaviour. He organises these attempts under a number of questions:

(i) Are norms rationalisations of self-interest?

Elster recognises that some people argue that norms are merely tools of manipulation, used to dress up self-interest in more acceptable garb, and point to investigations in social psychology suggesting that people prefer the distributive norms which favour them. For instance, low-income groups invoke a norm of equality, while high-income groups advocate pay according to productivity. However, Elster counters that, while this might seem to be the case for certain norms, it is more difficult to appreciate the self-interest underlying other norms: for instance, vengeance, which obviously overrides self-interest. Moreover, he goes on to suggest that certain norms are actually self-defeating, and the manipulation of norms for self-interested purposes can only occur if other people are willing to let norms take precedent over self-interest, otherwise there would be nothing to manipulate.

(ii) Are norms followed out of self-interest?

A second attempt to equate norms and self-interested optimising behaviour identified by Elster is the notion that norm-guided behaviour is supported by the threat of social sanctions that make it rational to obey the norms[60]. In response to this, he points out that norms do not need external sanctions to be effective. When norms are internalised, they are followed even when violations would be unobserved and not exposed to sanctions. Shame or anticipation of it acts as a sufficient internal sanction. That is, "if punishment was merely a price tag attached to a crime, nobody would feel shame when caught" (Elster, 1989: 105).

(iii) Do norms exist to promote self-interest?

Some norms can be individually useful, such as the norm against drinking or overeating. Thus, it is argued perhaps social norms are individually useful in that they help to economise on decision-making. Elster points to norms which violate this argument by distinguishing between the usefulness and the rationality of norms. He takes as an example the code of vengeance. While a code of vengeance can have good consequences – they may ensure people avoid offending me – quarrels between people all holding such a code may actually produce worse outcomes than, for instance, resolving differences in a court of law. Elster (1989: 106) summarises this argument thus: "from a rational point of view, the code is not credible unless it is in the interest of the threatener to carry it out when the time comes. The threat to kill oneself, for instance, is not rationally credible".

(iv) Do norms exist to promote common interests?

It is sometimes argued that norms are collectively rational, having collectively good consequences for those who live by them. For instance, it is suggested that norms compensate for market failure, and the agreement to follow a norm improves the efficiency of the economic system. In response to this argument, Elster makes three points:

(a) Not all norms are Pareto improvements, and some make everybody worse off.

In support of this idea Elster presents, among others, the norm of etiquette as an example of norms that make everybody worse off due to the required wasteful expenditure in pointless behaviours. One argument against Elster's example would be to suggest that etiquette serves the useful function of confirming one's identity to a social group. However, Elster rejects this notion, as the norms required need not be so complicated: "To signal or confirm one's membership in a group one sign should be sufficient, like wearing a badge or a tie" (1989: 108 – 109).

Elster may once again be countered by the suggestion that it is the complexity of the norm that serves to keep outsiders out, thus maintaining people's standing as members of the particular social group. Elster's response to this argument is to point to the norms that govern the life of the working classes whose role cannot be to keep outsiders out. It is here that Elster's argument becomes somewhat strained. Surely he is not suggesting that all norms related to the class system are intended to regulate membership of different class groups. As he himself has amply demonstrated, norms serve a multitude of purposes. The advantages implied of membership to an elite upper class, and the role of excessively wasteful consumption in identifying one with such a class, are eloquently documented in Thorstein Veblen's *The Theory of the Leisure Class* (1994).

(b) Some norms that would make everybody better off are not observed.

For instance, the norm of using public transport over private cars would result in less congestion and less time lost commuting. However, this does not seem to be an argument against the notion that norms provide collective benefit. In making this argument Elster seems to confuse "norms exist for collective benefit" with "norms that provide collective benefit exist".

[60] This point is related to the discussion concerning the sanction system required for collective action (s. 1.2.2).

(c) Even if a norm does make everybody better off, it does not explain why it exists, unless there could be shown to be some feedback mechanism that specifies how the good consequences of the norm contribute to its maintenance.

Rejecting the notion that such a feedback mechanism exists, Elster states:

> The norms of the strong are not as a rule taken over by the weak, nor do the weak always disappear in competition with the strong. Greece was conquered by Rome, but Rome assimilated more Greek norms than the other way around. When China was conquered by the barbarians, the latter ended up assimilating and defending the culture they had conquered (1989: 114).

However, in summarising his argument, Elster (ibid.: 114) recognises that:

> These arguments do not add up to a strong claim that the social usefulness of norms is irrelevant for their explanation. I find it as hard as the next man to believe that the existence of norms of reciprocity and cooperation has *nothing* to do with the fact that without them civilisation as we know it would not exist. Yet it is at least a useful intellectual exercise to take the more austere view, and to entertain the idea that civilisation owes its existence to a fortunate coincidence. On this view, social norms spring from psychological propensities and dispositions that, taken separately, cannot be presumed to be useful, yet happen to interact in such a way that useful effects are produced.

Hence, while Elster rejects the notion that norms are individually rational, he at least recognises the possibility that their existence and interaction may produce useful effects.

As it is the intention of this section to merely demonstrate economists' efforts to reduce norms to self-interested optimising behaviour, whether they are correct to reconcile social norms with rationality in this way will detain us no longer. Instead, we move on to consider an alternative means of reconciling economics and morality.

8.5 The "divided self": the critiques of Etzioni and Sen.

Based upon the criticism that morality conflicts with economists' assumption of self-interestedness, there have been a number of approaches suggested to deal with economists' neglect of morality. One of the most vibrant alternative approaches to modern Western economics is offered by the German, or "institutional" tradition (Wilk, 1996). Some of the German historicists, such as William Roscher, thought that all people had two basic instincts, one self-interested and the other moral and ethical, a tradition that has come to represent one of the more common strategies in relating citizen and consumer values within critiques of economics.

Amitai Etzioni (1988) distinguishes the deontological moral philosophy from the utilitarian basis of the neoclassical paradigm. Acknowledging that deontology has different sub-schools and encompasses internal differences, Etzioni goes on to emphasise one particular element of deontology: that the basis for deontology is that actions are morally right when they conform to a relevant principle or duty (the term deontology is derived from the Greek *deon* meaning binding duty), while utilitarianism bases morality on consequences. From the deontological perspective, there is more to life than a quest to maximise one's satisfaction.

Etzioni (1988) then goes on to propose what he refers to as a "moderate deontological" position: accepting a role for consequences, but only as a secondary consideration. Thus, a moderate deontological position provides the foundations for inclusion of neoclassical concepts and findings as a subset. Specifically, Etzioni adopts a dualism between a 'higher self' that is moral and altruistic, and a 'lower self' which is selfish, subjective, egotistical and driven by needs, defining a new field called "socioeconomics" or "humanistic economics":

> Where the neoclassical assumption is that people seek to maximise one utility (whether it be pleasure, happiness, consumption, or merely a formal notion of a unitary goal), [it is suggested instead] that people pursue at least two irreducible "utilities," and have two sources of valuation: pleasure and morality (1988: 4).

At the core of Etzioni's position is the reconciliation of the utilitarian *homo economicus* and the deontological *homo sociologicus*:

> The assumption of creative tension and perpetual search for balance between two primary forces – those of the individual, and those of the community, of which they are members. If one views the community as merely an aggregation of individuals temporarily joined for their convenience, one leaves out the need for commitment to serve shared needs and for involvement in the community that attends to these needs. If one sees the community as the source of authority and legitimacy, and seeks, in the name of duty, to impose behavioural standards on individuals [...] this leaves an insufficient basis for individual freedom and other individual rights [...] Individuals and community are both completely essential, and hence have the same fundamental standings (Etzioni, 1988: 8 - 9).

Thus, people make moral judgements on their urges, judgements rooted in their social experience, and these moral commitments are stronger than their biological urges. That is, Etzioni contends that the "most important basis for choice", the "majority of choices", and the "natural" forms of choice are "affective and emotional", rather than rational and self-interested. As in the work of Sagoff and Keat in chapter 2, choices are based on social and moral judgements and only secondarily on logical grounds.

In support of the "divided-self", cognitive psychologist Danial Kahneman teamed up with economists Jack Knetsch and Richard Thaler (1986) to investigate what kinds of economic behaviour people think are fair. They found that the public usually considers unfair behaviour that which violates the implicit commitments of an ongoing relationship or deliberately exploits the special dependence of a particular person. Similarly, studies into the prisoner's dilemma indicate a substantial refusal on the part of a significant fraction (20 – 35%) of participants to undertake rational self-interested action, even under circumstances of complete anonymity with no possibility of group punishment (Dawes and Thaler, 1988). Those taking the cooperative stance stated their motive as to "do the right thing".

Perhaps the most prominent supporter of the dualist distinction between morality and consumer preferences is A. K. Sen. Elaborating on the role of ethics in economics, Sen identifies and distinguishes between the concepts of sympathy and commitment as the key departures from self-interest, a distinction paralleling that between altruism and morality discussed above (s. 7.1):

> The former corresponds to the case in which the concern for others directly affects one's own welfare [...] It can be argued that behaviour based on sympathy is in an important sense egoistic, for one is oneself pleased at other's pleasure and pained at other's pain [...]. It is action based on commitment rather than sympathy which would be non-egoistic in this sense (1977: 327).

Based on this distinction, Sen (1977: 329) argues that

> [Commitment] drives a wedge between personal choice and personal welfare, and much of traditional economic theory relies on the identity of the two. This identity is sometimes obscured by the ambiguity of the term 'preference', since the normal use of the word permits the identification of preference with the concept of being better off, and that at the same time it is not quite unnatural to define 'preferred' as chosen.

That is, while sympathy possesses certain characteristics that allow its incorporation into market valuation techniques, commitment is of a qualitatively different nature to consumer preferences and requires considering separately. Sen goes on to propose the concept of "meta-ranking" of preferences to explain how one might place commitment over subjective preferences: "we need to consider *ranking of preference rankings* to express our moral judgements" (1977: 327). That is, rational individuals have both meta-preferences and ordinary preferences. Meta-preferences include moral values, and shape the ordering of ordinary preferences.

8.6 The teleological structure of preference and morality.

Our discussion of the relationship between economics and morality has so far been based on the contrast between morality and the assumption of self-interest underlying economic models. However, as argued at the start of section 8.3, economists' acceptance of the notion of self-interested agents results from their attempts to maintain the utilitarian conception of utility as what is good. On its own, the definition of utility employed within economics – preference satisfaction – does not require self-interestedness to be assumed. Indeed, modern axiomatic utility theory makes no such assumption (Hanley and Spash, 1995). Agents can conform with the axioms of neoclassical economics without being self-interested. Economics is concerned with the structure of preferences – they must constitute an ordering – rather than the content of preferences – that they are self-interested (Broome, 1992). However, the confusion over the definition of utility employed within economics leads many economists to forget this important discovery.

It is economic's concern with the structure of preferences that causes Broome (1992) to suggest that Etzioni is not necessarily correct when he argues that recognising that people act from moral motives requires that large changes be seen in economics. Broome bases this argument on the notion that morals may not conform with Etzioni's deontological description of them. Instead, Broome entertains the possibility that morality may be teleological in form, and thus parallel economic axioms concerning the form of preference.

Broome (1992) starts by reformulating Etzioni's philosophical diagnosis of attempts to incorporate morals into economic models. Etzioni makes a claim about the sort of morality that motivates people and that contradicts the value system underlying the market: it is deontological (s. 8.5). However, Broome (1992) suggests that Etzioni's definition of deontological, and thus his diagnosis of the problems with economics, is not clear. That is, while Etzioni talks of the utilitarian and the deontological moral frameworks, he specifically contrasts the teleological (or 'consequentialist') component of utilitarianism with deontology. Broome (1992) then goes on to reclassify 'utilitarian' and 'deontological' in Etzioni's argument as 'teleological' and 'non-teleological' respectively. A teleological theory values an act according to the goodness of its

consequences. A non-teleological theory, on the other hand, assigns intrinsic value to some acts.

Having reclassified Etzioni's argument, Broome goes on to identify problems with this distinction between teleological and non-teleological positions in what he refers to as 'the simple teleological view'.

> If I perform some act, one consequence of my doing so [...] is that I have performed the act. If the act is intrinsically good or bad, then this consequence is good or bad too. When evaluating the consequences of the act, there is nothing to stop our including the value of this consequence along with others. In this way the intrinsic value of the act can be taken into account within an evaluation of the consequences (Broome, 1992: 270).

As is now well recognised, teleology can therefore take account of the intrinsic value of acts; it can simply absorb these values that at first seemed to be non-teleological.

Broome (1992) identifies two arguments within the literature that attempt to undermine his 'simple teleological view'. Firstly, it is suggested that the simple teleological view takes up a neutral, impersonal standpoint. Thus, from this perspective, although there exists a norm of not breaking a promise, it might be considered better for me to break a promise if this ensures that two or more people do not break their promises. It is argued, however, that account should be taken of the actor's particular position in a moral problem. Thus, more weight should be attached to my broken promise than other people's promises. If this weight is strong enough it may be better for me to keep my promise. Although these positions differ in their understanding of good, both the 'agent-relative view' and the teleological view imply that the right act is the one that maximises good (Broome, 1992).

Secondly, while the teleological view weighs good and bad events against one another, it is argued that considerations do not work this way. That is, the wrongness of breaking a promise is not a consideration that should be weighed against other good/bad. Instead, it simply determines that I ought not to break a promise. This argument can be found in

the work of Robert Nozick (1974). While the first criticism maintains the teleological view that the right act is the one that maximises good, the second argument employs the distinction between teleological and non-teleological theories in the way moral considerations are seen to come together in determining the right thing to do:

> According to teleological theories, they combine to determine what is best, and what is best is, in turn, what is right. According to non-teleological theories, on the other hand, moral considerations sometimes work in other ways (Broome, 1992: 273).

Broome (1992) thus identifies teleological theories as possessing a maximising "structure". A teleological theory is one that aims to maximise *good*. That is, a teleological theory implies that, between acts, there is a "betterness relations":

_____ is at least as good as _____

Moreover, this relation must conform to the transitivity and reflexivity constraints (s. 8.2), and thus is an ordering. Acts, therefore, are ordered by their goodness.

The parallel between this definition/structure of teleological theories and the similar preference orderings that underlie the methods of economics causes Broome (1992) to argue that:

> The traditional methods of economics can cope with moral behaviour, provided it is behaviour according to a maximising morality. If [maximising morality] includes all moral behaviour, so much the better for the methods of economics (Broome, 1992: 275).

That is, the issue of concern in determining whether radical change is required at the foundations of economics is whether people act in accordance with a teleological or a non-teleological morality. Acting in accordance with teleological morality is consistent with utility theory. Acting in accordance with non-teleological morality makes Etzioni's claim that people's morality is specifically deontological correct, and another look is

required at the behavioural assumptions underlying economics. As Broome (1992: 281) states:

> Etzioni says that people have two 'utilities', one self-interested and one moral. He means that people pursue two goals. But a person may pursue both her own good and the good of others and still conform to a teleology. She has only to integrate her goals into a coherent structure, giving particular weight to each.

Etzioni says that there is conflict between people's goals. In Broome's terms, this would mean that people fail to integrate their goals into a coherent structure, and thus do not conform to a teleology. Broome himself refers to this possibility as an "important source of irrationality [requiring] a major change in economics, [as] a very fundamental assumption of economics is that, by and large, people behave rationally" (1992: 281). That is, the cause of the "major blow to the method of economics" would be "irrationality and not deontological morality" (1992: 281).

Broome's emphasis on the structure of morality rather than on whether agents are self-interested in determining the validity of the economic argument is supported by O'Neill (1998: 168):

> That individuals are 'self-interested' in the sense that they are concerned to satisfy a consistent set of preferences under budget constraints does not imply that agents are egoists in any strong sense of the term. [To adopt the 'self-interested' assumption] inherits the late eighteenth-century shift in the language to describe the unlimited acquisitiveness, in which the classical terms *pleonexia*, greed, avarice and love of lucre were replaced by the term 'interest', and hence 'self-interest' was defined in a narrow fashion. However, in taking for granted this concept of self-interest, it goes beyond the basic formal axioms of neo-classical theory, and implicitly introduces substantive claims about the content of agents' preferences.

That is, the issue of concern in determining the validity of the claims of economics is not the content, but the structure of preferences. It is not whether agents are motivated by self-interested or moral values, but the structure of these values that is important. Whether we follow Etzioni, and refer to the problem for economics as the deontology of morality, or follow Broome, and categorise it as irrationality, the problem remains the same: whether goals driven by moral values can be integrated into a coherent structure with other value forms, or whether people perceive a conflict between their goals. It is exactly this question that was derived from our discussion in chapter 2 and that motivates part III of this thesis: whether moral norms can be valued monetarily without agents experiencing ambivalence. Having defined in more detail the issue of concern, it is to the empirical investigation of whether morality is teleological or non-teleological to which we will turn in chapter 9.

9. Anomalies in Contingent Valuation Survey Responses: An empirical investigation into the structure of morality.

9.1 Introduction.

The last chapter framed the question of whether morals can be incorporated within economic valuations, or whether moral norms and economic preferences are commensurable, as whether morality can be considered to be characterised as having a teleological structure. This chapter attempts to empirically investigate this question. This is attempted within the framework of the Contingent Valuation Mechanism (CVM), as a significant amount of attention has been focused on investigating the nature of responses to Contingent Valuation (CV) questionnaires and their relation with economic theory: "Contingent valuation has prompted the most serious investigation of individual preferences ever undertaken in economics" (Smith, 2000; quoted in Carson et al, 2001: 196). In particular, it is suggested that the claim that protest responses to CV questionnaires reflect the non-commensurability of ethical and economic values can be used as a means of constructing a method for analysing the structure of morality.

The next section briefly introduces the CVM and discussions within the CVM literature as to the consistency of questionnaire responses and economic theory. It is suggested that the commensurability of citizen and consumer values in the context of environmental valuation can be investigated through consideration of the forms of response to CV surveys and the motivations underlying them. It is argued that if ethical norms are indeed of a qualitatively different form to economic preferences – if they are non-teleological – then respondents will experience ambivalence when asked to value them monetarily within a CV survey, and will protest at being asked to do so. On the other hand, if ethical norms and economic preferences share a teleological structure, their monetary valuation will not elicit such ambivalence or protests. That is, the motivations underlying CV survey responses will be analysed to determine whether:

(a) Protest responses are motivated by the existence of social norms, and
(b) The existence of social norms manifests itself in protest responses.

Section 9.3 provides a brief survey of the socio-cultural context in which the CV questionnaire is implemented, demonstrating the existence of cultural norms regarding forest use, before section 9.4 describes the questionnaire employed. The results obtained suggest that morality has a teleological structure and is commensurable with economic preference (s. 9.6). However, it is argued that in making such a conclusion we fail to overcome the 'fallacy of motivational precision'. That is, in analysing the structure of belief/preference, assumptions must be made regarding belief and preference.

9.2 Using the Contingent Valuation Mechanism to determine the structure of moral values.

9.2.1 Ethical values and protest responses to the Contingent Valuation Mechanism.

Sagoff (1998) and others[61] suggest that the error involved in transforming citizen values into consumer values through their economic valuation is manifest in the difficulties faced by practitioners of the Contingent Valuation Mechanism (CVM) when attempting to measure citizen values monetarily. Individuals report that they base their willingness to pay (WTP) for environmental public goods on their concerns as citizens more than on their wants as consumers, being affected less by their own well-being than by ethical concerns: decision making processes inconsistent with the neo-classical paradigm (Edwards, 1986, Diamond et al, 1993, Sagoff, 1998). Specifically, it is suggested that the non-commensurability of citizen and consumer values is manifest in anomalies observed in the responses to Contingent Valuation surveys; more specifically, the existence of protest responses[62].

[61] For instance, see the work of Vatn and Bromley (1995), who relate anomalies in CV surveys specifically to the non-commensurability of citizen and consumer values in the valuation of environmental resources.

[62] A number of other varieties of anomaly have been recorded in responses to CV surveys; for instance, embedding, scope and order effects. Arguments concerning the nature of these effects and their relationship with the neo-classical paradigm are already well established within the literature (see Imber et al, 1991; Mitchell, 1991; Kahnemann and Knetsch, 1992; Carson et al, 1992; Diamond et al, 1993; Devouges et al, 1992; Loomis and Larson, 1992; Smith, 1992; Hanemann, 1994; and Carson and Flores, 1996), and arguments have been presented for the reconciliation of these effects with consumer theory. Discussion of these anomalies will, then, not concern us here.

The CVM is one of the non-market valuation techniques applied by economists in the absence of markets for welfare enhancing/deteriorating effects[63]. Carson (1998: 15) describes it as:

> A survey-based technique for eliciting preferences for non-market goods, in a form which allows one to estimate how survey respondents trade-off private consumption for a non-marketed good in monetary terms. It is the most commonly used approach to placing a monetary value on non-marketed environmental resources.

That is, the CVM represents a technique used for the monetary valuation of externalities. Specifically, a CV survey takes the form of a constructed hypothetical market for the good or service requiring valuation: a hypothetical valuation problem that usually takes as its departure a change in the status or characteristic of the good of services that respondents are then asked to state their willingness to pay (WTP) to avoid, or their willingness to accept (WTA) compensation for (for further details see Mitchell and Carson, 1989). Participants' WTP and WTA responses can then be used to construct utility functions and thus the economic value of the good or service. Firmly grounded within the neo-classical framework, the CVM is now widely accepted by resource economists following a great deal of empirical and theoretical refinements during the 1970s and 1980s (Hanley and Spash, 1995)[64].

One of the attractions of the CVM is that it facilitates the construction of a market in which the researcher can devise an economic decision related to the commodity of interest. If it is the case that environmental values are of a fundamentally different form to those found in the market, it is suggested that this will likely be manifest in ambivalent reactions to the construction of such a market for the resource. As already discussed in chapters 2 and 8, the existence of the social norms that define citizen values is thought to result in feelings of ambivalence or conflict when the monetary valuation of such norms is attempted. That is, strongly opposing feelings are

[63] Other non-market valuation techniques include the hedonic pricing method, the travel cost method, as well as production function approaches. A review of these methods can be found in Hanley and Spash (1995).

experienced in attempting to apply monetary valuations to such norms, the resolution of which violates the assumptions underlying the neo-classical paradigm (Opaluch et al, 1989, Stevens et al, 1991). Specifically, the non-comparability of options means that the individual faces non-scalar preferences based upon different objective functions, and the balancing of costs and benefits involved in neo-classical calculations is not the basis for choice. In such cases individuals are thought to rely on alternative forms of decision making, such as rules of thumb or lexicographic orderings (Opaluch et al, 1989). Moreover, when choices are made with the aid of rules of thumb, the observed behaviour cannot be considered to reveal individuals' underlying preferences, as such alternatives are designed specifically to avoid the need to balance costs and benefits.

Opaluch et al (1989) modelled such ambivalence as spanning a continuous range of congruity. At one extreme attempts to value goods monetarily are congruous, trade-offs are possible and neo-classical theory applies, and agents are able to respond to CV questionnaires without experiencing ambivalence. At the other extreme attempts to value goods monetarily are incongruous, no comparison between goods is possible, and people experience ambivalence when attempting such valuations and respond by protesting. In between these extremes a scale of ability to resolve ambivalence is considered to exist, reflected in the divergence of WTP and WTA in CV surveys.

In response to the range of congruity, economists have tended to focus on discrepancies in the level of WTP and WTA[65]. In particular, they tend to invoke one of various tests to argue for the consistency of responses with economic theory, including order and embedding effects, scope effects, endowment effects, and income and substitution effects, or to claim that such anomalies are the result of survey context (Carson et al, 2001). For instance, Kahneman and Knetsch (1992) argued that order and embedding effects in CV survey responses reflect the willingness to pay for "moral satisfaction" or "warm glow" rather than the economic value of goods and services. While critics of the CVM suggest that "moral satisfaction" is not an economic value, economists counter

[64] For discussion of the relationship between the CVM and the neo-classical paradigm, as well as the relative merits of the CVM see Cummings et al (1986), Mitchell and Carson (1989), and Hanley and Spash (1995).
[65] See Willig (1976), Thaler (1980), Kahneman et al (1990), Haneman (1991), Mueser and Dow (1997), and Carson et al (2001).

that it is utility whatever its source that matters for total value (Carson et al, 2001). Motivations are essentially irrelevant from the perspectives of economic theory.

Sagoff (1998) suggest that, in explaining anomalies in WTP responses in this manner, economists are exploiting what he refers to as "ambiguity of the term 'satisfaction'", extending it to encompass "psychological satisfaction", or a mental state of pleasure or contentment, correlating preferences with the "warm glow" individuals obtain from supporting a worthy cause, rather than the conventional sense of fulfilling the terms of a preference[66]. In response to this approach economists developed many concepts – including 'existence', 'vicarious benefit', 'bequest', and 'stewardship values' – to capture in welfare terms the amounts people were willing to pay for policies of which they strongly approve because they believe them to be intrinsically right. However, this strategy presupposed what had to be proved, namely, that WTP really sought to buy psychic satisfaction (Sagoff, 1998).

Sagoff (1998) goes on to argue that anomalies in WTP reflect the existence of citizen values qualitatively different to those prevalent in the market. In support of this position, a recent paper by Spash (1997) has pointed to the difficulties inherent within the CVM for those who hold rights based beliefs with regard to the environment. It is Opaluch et al's (1989) extreme of incongruity that it is argued most incontrovertibly reflects the existence of such non-commensurable value forms. The protest responses associated with such ambivalence or incongruity are thought to reflect attitudes toward the valuation process, in particular an ethical objection to the idea of placing environmental objects in a market context (Jorgensen and Syme, 2000). Thus, it is on such incongruity and protest response which we will concentrate.

Economists' reaction to the existence of protest responses in CV surveys is to either claim the consistency of these responses with economic valuation, or to remove them from final valuation calculations – the approach generally employed towards outliers within CVM studies (Mitchell and Carson, 1989) – both of which have caused controversy within the CVM literature (Jorgensen et al, 1999). Lindsey (1994), the first author to really address the issue of the meaning of protests, interpreted them as being

indicative of the undue influence of contextual elements of the CV (payment vehicle, information constraints, judgements of procedural fairness) and should therefore be censored, as they do not reflect "true" values. Jorgensen et al (1999), however, argue that before such censoring or calculation of economic values can be justified, what CV surveys are really measuring should be determined, and that until such a discussion is undertaken one must be suspicious of such a methodology.

The existence of a number of alternative attitudes capable of explaining protest responses – ethical objections to monetary valuation of resources, attitudes towards contextual elements within the elicitation model – would tend to suggest that determination of the attitudes underlying a particular response is an empirical problem. Jorgensen et al (1999), having performed a CV survey to determine the exact influence of these contextual elements of the CV format (payment vehicle, procedural fairness, institutional form use) on the frequency of protest responses, suggest that the incidence of protest responses could not be explained by these methodological issues alone, but rather arise from the act of paying itself, indicating the importance of non-economic forms of valuation within decision making with regard to environmental resources.

9.2.2 Investigating the attitudes underlying protest responses.

It is suggested that the commensurability of citizen and consumer values in the context of environmental valuation can be investigated through consideration of the forms of response to CV surveys and the motivations underlying them. It is argued that if ethical norms are indeed of a qualitatively different form to economic preferences – if they are non-teleological – then respondents will experience ambivalence when asked to value them monetarily within a CV survey, and will protest at being asked to do so. On the other hand, if ethical norms and economic preferences share a teleological structure, their monetary valuation will not elicit such ambivalence or protests. That is, the motivations underlying CV survey responses will be analysed to determined whether:

(a) Protest responses are motivated by the existence of social norms, and
(b) The existence of social norms manifests itself in protest responses.

[66] It is the 'ambiguity of the term 'preference' that economists use to argue in chapter 2 that citizen values

Conventional approaches to performing CV surveys do not lend themselves to making known the motivations underlying responses. Identifying this situation, Boyle et al (1994) concluded that:

> [I]dentifying the ultimate explanation of our results is not easy because our study, like most contingent-valuation studies, does not contain sufficient information to identify how respondents formulate their valuation responses. Unfortunately the economic construct provides hypotheses regarding the outcome of valuation experiments, but is fairly anemic in insights about the processes respondents employ when formulating valuation responses (pg. 78 – 79; quoted in Clark et al, 2000: 46).

The National Oceanic and Atmospheric Administration (NOAA) report assessing the reliability of the CVM recommended, amongst other things, that respondents attitudes towards the goods being valued be used to help interpret survey results (Arrow et al, 1993), the rationale being that such respondent characteristics might provide an internal test of the plausibility of responses. However, attention to respondent attitudes is one of the panel's recommendations to receive least attention (Kotchen and Reiling, 2000). Moreover, in the context of analysing the relationship between economic preferences and moral norms, it is suggested that the attitude surveys that are recommended are unable to accurately distinguish between preferences and norms, as respondents are unlikely to be aware of what motivates their value judgements (Kotchen and Reiling, 2000). That is, despite Spash's (1997) identification of a correlation between environmental attitudes and ethical beliefs, such research suffers from what Mitchell and Carson (1989) refer to as the 'fallacy of motivational precision'. While environmental attitudes surveys may demonstrate the strength of people's values with regard the environment, they do not tell us anything about the structure or nature of those values.

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are consistent with the self-interested model of rationality (s. 2.6).

It is argued that, if we want to determine the form of ethical values, respondents' attitudes to valuing goods monetarily would provide a better indicator than their attitudes to the goods themselves. Thus, following Clark et al (2000), it is suggested that investigating the CVM from the perspective of the members of the public who take part in CV surveys can contribute to understanding the motivations underlying protest responses and determine whether they are consistent with the utilitarian preference structure assumed by neoclassical economists. That is, rather than relating environmental attitudes and CV responses, the focus will be placed on respondents' attitudes to the CV survey itself. To use Clark et al's phrase, it is intended that "the 'black box' that is CV be opened up". Having already identified respondents attitudes in the shape of relevant environmental norms within the sample population (s. 9.4), a further step is taken and the existence of these norms is related to respondents reactions to the CV format itself. It is hoped in this way that the 'fallacy of motivational precision' can be overcome and we can determine whether the environmental norms are utilitarian or deontological in form.

9.3 Environmental norms in northern Thailand.

An investigation of the motivations underlying CV survey responses in the presence of social norms requires that a valuation scenario be identified in which such norms are relevant. The resources chosen for valuation are the forest resources of northern Thailand; and the participants whose valuations are elicited are from a number of locations of varying socio-cultural characteristics within the northern Thai region. Before the method for valuation elicitation is considered, the social norms pertaining to the valuation of forest resources relevant to each research population will be examined.

The sample population was selected from among the inhabitants of the northern Thai region, and included Thai participants from *Chiang Mai*, the second largest city in Thailand; *Chiang Dao*, a large town set in the rural region 75 km north of *Chiang Mai*, and located on the edge of the *Doi Chiang Dao* Wildlife Sanctuary, a protected forest area; and *Baan Tham*, a village also located on the edge of the *Doi Chiang Dao* Wildlife Sanctuary. The final element of the sample was chosen from the Karen village of *Mae Paa Sao*, located within the *Doi Chiang Dao* Wildlife Sanctuary (maps 4.1, 4.2).

9.3.1 Traditional Karen spirit beliefs[67].

The Karen's traditional understanding of the relationship between humans and nature can be summarised by the expression: 'Live with the water, care for the river ... Live with the trees, care for the forest' (Prasert, 1997). Various aspects of Karen cultivation techniques are pointed to as evidence of their benign relationship with the forest. The preference for secondary sites and old plots, short cultivation and long fallow periods, and maintenance of larger trees within plots that define Karen shifting cultivation are considered by anthropologists to represent a benign adaptation to the forest environment (Kunstadter, 1983; Chalardchai, 1989; Anderson, 1993; Prasert, 1997; Bello et al, 1998).

The sustainability of Karen forest use practices is said to be supported by a complex cultural and social system based upon the 'local' knowledge of Karen farming communities. Perhaps the best expression of such knowledge systems is the extensive array of customs, prohibitions and rituals which regulate the use of the forest: a system of regulations derived from a mix of animism, Buddhism and loyalty to the ways of their ancestors. The Karen believe that everything in the world, including forest resources, has a spirit 'owner', an unseen supernatural power that inhabits a different dimension, and can harm humans if made angry (Shrock, 1970; Yoshimatsu, 1989; Hinton, 1990; Chumpol, 1997; Prasert, 1997). Harmony between themselves and the spirit realm is constantly strived for, requiring the performance of many rituals throughout the year.

Community forest areas contain the larger trees in the local village area, and the belief that they should be conserved is held so strongly that the Karen rarely contradict it (Prasert, 1997). The trees in this area are closely connected with Karen spirituality and identity. The community forest abounds with spirits, the power of which varies with the topographical features of the landscape[68]. Where powerful spirits reside, clearing and even cutting the forest is considered taboo. In other areas villagers must inquire with the spirits before clearing the forest. (For details of the distribution of spirits within the

[67] For further discussion of the spirit beliefs of the Karen, see s. 7.5.
[68] For a further description of the topographical relationship between spirits and resources see s. 7.5.

forest, and the rituals performed for their appeasement, see Shrock, 1970; Prasert, 1997, and Chumpol 1997).

9.3.2 Traditional Thai relations with the forest.

Traditional Thai cultural relations with the environment mirror those of the Karen. Kunstadter states that:

> Archaeological, historical and ethnographical evidence suggests that the people of Thailand, over many thousands of years, developed cultural adaptations to a varied environment, involving different combinations of hunting, fishing, gathering, complex farming systems and eventually manufacturing and trade (1989b: 543).

Once again these cultural adaptations are regulated through social beliefs regarding the relationship between people and the spirit world (Suvanna, 1989). Two important spirits are *Phra Sai*, spirit of the banyan tree, and *Phra Pho*, spirit of the pipal tree, both of which are found in the forest. These spirits are both male. Female spirits include *Nang Tani*, spirit of the banana tree, and *Nang Takien*, spirit of the hopea tree. If these trees are to be cleared, a sacrifice must be offered to the spirit of the tree to in order to gain permission, or the spirit will cause harm to those who chop down the tree (Suvanna, 1989).

Prior to being introduced to the spirits regulating use of environmental resources, Thai children learn to respect, appreciate, as well as fear nature through nursery rhymes and lullabies (Suvanna, 1989). Rhymes are used to highlight feelings of benevolence towards the animals and plants the child meets in its everyday life. They are taught to think of animals as if they are human beings with sense and feelings. That is, they are gradually "introduced to the teachings of Buddhism regarding merit and sin, and perhaps to the law of Karma" (Suvanna, 1989).

9.3.3 Social forces in contemporary environmental perceptions in Northern Thailand.

There is a vast literature concerning the impact of recent changes in the social structure in Thailand on the efficacy of traditional social norms in the regulation of environmental resource use. Recent improvements in transportation and communication, the extension of state institutions into the village, and increased rates of consumption driven by the cultural force of development advertising have combined to reduce the relevance of the above traditional norms in the everyday lives of the people of northern Thailand (Kunstadter, 1989b). The prevalence of these effects varies between the four research locations. However, considering the limited scope of this survey, rather than discussing the incidence of these dynamics in each research location, we will restrict ourselves to the observation that, while such factors have tended to erode traditional norms, they also institute the means for the development and diffusion of alternative norms. Moreover, as more contemporary social norms also emphasise the importance of forest conservation, the extent to which traditional norms have been replaced is not of great concern here. Irrespective of the degree of social change, norms still exist promoting the conservation of forest resources. Once again, there is a vast literature on the effects of such alternative worldviews, and we will restrict ourselves here to a few points illustrating the influence of two factors, education and the media, upon forest use norms.

It is argued that while education provides a way for tribal people to better themselves within Thai society, it also represents a severe challenge to the perpetuation of tribal cultures and their environmental values (Anderson, 1993). Superficial, though still significant evidence of such influence is the fact that school children are not allowed to wear tribal dress – instead they have to wear school uniforms – and that students are instructed in the Thai language (Anderson, 1993). However, this is not such a great issue in Mae Paa Sao. While the younger members of the village do attend school in the nearest large Thai town, the majority of the sample population, selected from older members of the village, had received little or no formal education.

For those Karen who had received formal education, as well as the majority of the Thai part of the sample population, the manner in which the environment is presented within the Thai education system represents an important factor in the development of social

norms. While a complete examination of the role that formal education plays in the development of environmental preferences in Thailand is beyond the scope of this discussion, the official aim of education policy with regard the environment is clear in the following statement from the Thai Government:

> Since Thailand's children will have to cope with air, noise, land, and water pollution, it is necessary to inculcate them with environmental values to make responsible decisions from an early age. They must feel they are a part of nature and that they have a stake in its preservation. They must acquire confidence and a sense of responsibility for improving it (Royal Thai Government, 1992: 22).

The presentation of the environment within the media forms a large influence upon the environmental perceptions of particularly the Thai part of the sample population, but to some extent also the members of the Karen villages. While the ability to read of the more isolated Karen population is limited, about ¾ of Karen households reported having radios, which were on a number of occasions during the interviews mentioned as a source of information regarding forestry issues.

The media constantly highlights the value derived from, and promotes the preservation of, the forest. For instance, the population of Thailand is "constantly hearing in the media, and advertising uses as a selling point, that the forest is a source of water" (Chusak Wittayapak, Krungthep thurakit, 12 January 2000, pg. 5). For instance, the Chiang Mai News comments that:

> Years ago the Li River [in Lamphun province, Northern Thailand] was very fertile, able to provide water for drinking and use in agriculture [...], and could be used for floating teak trees throughout the day and night. However, this picture is changing due to the extent of deforestation. Now the water level drops every year, and the river is dead (Chiang Mai News, pg. 3, 21 January, 1999).

Similarly, in a quote that holds extra significance when one appreciates the level of respect with which the King is held in Thailand, the newspaper ThaiRat remarked that:

> The King of Thailand was very happy when he saw, in front of him, what in the past had been scrub, had now become green and lively. The King has inspired many people to participate in tree planting projects that are now yielding large, healthy trees that will provide value for their whole life (ThaiRat, 24 July, 1997, pg. 14: "Trees numbered in 100 millions: the harmony between man and forest").

9.3.4 Social norms in northern Thailand.

While the summary of this section in no way represents a comprehensive review of the literature concerning the influences upon environmental norms in the northern Thailand region, it is sufficient to indicate an underlying theme of environmental norms: the value of the forest. In each location the prominence of each of the various influences on environment values varies, yet the focus remains the value of forest resources. That is, while traditional beliefs could be possibly argued to more strongly express the norm of conservation, more contemporary social norms maintained through education and the media would tend to also highlight the importance of forest conservation.

9.4 Method

Based upon the notion that protest responses to CV surveys are a manifestation of the non-commensurability of citizen and consumer values (s. 9.2), a CV survey was performed for the conservation of forest resources in northern Thailand with participants possessing the social norm favouring the conservation of such resources (s. 9.3), in order to examine the form of CV survey responses and their motivation. Face-to-face interviews were conducted with 148 householders across the 4 research locations: Mae Paa Sao (41), Baan Tham (66), Chiang Dao (21), Chiang Mai (20).

As noted in section 9.2, the performance of CV surveys is conventionally intended to enable the estimation of the demand for a non-market resource and takes the form of a straightforward elicitation of participants WTP/WTA, ignoring the motivations underlying participants' responses, which are assumed to correspond with consumer theory. However, determination of the correspondence of social norms with consumer

theory and their impact on CV responses requires that responses be taken a step further, and motivations also discussed. Accordingly, a CV context and elicitation questions were designed in accordance with conventional thinking (Cummings et al, 1986; Mitchell and Carson, 1989; Arrow et al, 1993; Hanley and Spash, 1995), but protest responses were followed by discussion aimed at discovering the motivations behind the participants' responses.

A hypothetical market scenario was established based on participant WTP to enable improvements in Royal Forest Department (RFD) facilities and staff levels in order that they could ensure the better implementation of forest use restrictions and thus the preservation of existing areas of the Doi Chiang Dao Wildlife Sanctuary. To ensure that all participants possessed at least a minimum amount of information regarding the services provided by the forest, the possible consequences of losing forest in terms of water quality and quantity were provided in the interview.

The willingness to pay section of the survey included a scenario that was read to the respondents by the interviewer describing the possible improvements in the quality of the forest resources in the Doi Chiang Doa Wildlife Sanctuary. This information was presented along with photographs showing the ways that forest quality can be improved, and maps demonstrating the areas affected. The instructions were:

> There are a number of ways that quality of forest could be improved. For example, increased RFD staffing, improved incentives for RFD staff, or projects implements in cooperation with local communities. However, such policies would be costly. The next few questions concern the possibility of your willingness to pay for programmes to control forest quality.
>
> Some people have, for different reasons, criticised RFD efforts to control forest quality. However, for now, I would like you to suppose that any money that you might be willing to pay would be honestly spent and only for the purpose of improving forest quality. It is important to know how much improving forest resource quality is worth to you.
>
> When you answer these questions, I would like you to think about:

- Your current household income and expenses.
- Other possible uses for your household income.

This scenario, in combination with information about forest services presented earlier in the interview, served to define the nature of the public good, and possible remedial action.

Alternative sources of value other than that concerning the forest resources posed a serious problem in designing a realistic hypothetical market scenario for the preservation of forest resources in northern Thailand. The only organisation with the wherewithal and legal backing to undertake such a task in the eyes of the population is the RFD. Unfortunately, the RFD is also considered rather inefficient and corrupt by many people in Thailand, impacting perceptions as to the likelihood of the preservation project suggested being successful. Indeed, many of the responses collected displayed people's pessimism with regard the realism of the scenario presented because of the involvement of the RFD (s. 9.5).

A particularly important issue in the design of the CVM scenario was the form of payment vehicle employed. While the Thai elements of the sample interacted monetarily with state institutions through the payment of local charges, which were easily adapted for the purpose of CV survey design, the Karen pay no charges of any form to the Thai State. Hence, a payment mechanism had to be devised and introduced to participants as part of the scenario itself. While this is perhaps not ideal for conventional uses of the CVM, it is hoped that the elicitation of motivations within the survey enabled the influence of this issue to be identified.

The choice of mechanism for obtaining bids used within the survey was perhaps a little problematic from the perspective of conventional thinking on the subject. The flexibility and speed of response elicitation offered by an open-ended question format was considered necessary for the purposes of the investigation. The open-ended question format avoided the starting point bias associated with alternative methods (Hanley and Spash, 1995), and allowed participants to protest against the scenario presented where

they considered it appropriate. However, the advantages provided by such flexibility have to be offset against the fact that the open-ended question format is considered problematic when applied where participants have little experience of trading. This is of particular concern in the case of the Karen, who have the least interaction with the market. However, a study by Whittington et al (1990) suggests that "it is possible to do a contingent valuation survey amongst a very poor, illiterate population and obtain reasonable, consistent answers" (1990: 307).

The open-ended question was framed so as to reflect an annual government charge for improved forest conservation:

> What is the most your household would be willing to pay each year in the form of a local, state charge in order to fund improvements in RFD facilities and staff levels, hence enabling improved protection of the forest currently designated as belonging to the Doi Chiang Dao wildlife sanctuary?

In the case of 'protest' responses, value elicitation was then followed by a simple inquiry into the motivation behind the respondent's answer:

> Why did you say you wouldn't pay?

9.5 Results

CV survey response forms were distinguished according to categories defined as: reactions to the CVM scenario itself (RFD incompetence and other objections to the scenaro); WTP; unwillingness to pay due to lack of income; unwillingness to pay due to the lack of perceived economic benefit; and protest responses motivated by the contradiction of social norms concerned with the conservation of the environment. A frequency table describing the distribution of responses across these categories is sufficient to demonstrate the force of the results obtained (table 9.1).

Table 9.1 Frequency of CV survey response.

		CVM response form.					
Location	Sample size	WTP	Can't afford	Protest			
				No benefit perceived	Social norm	RFD incompetence	Other objections to scenario
Mae Paa Sao	41	20 (49%)	6 (15%)	6 (15%)	0	5 (12%)	4 (10%)
Baan Tham	66	15 (23%)	15 (23%)	10 (15%)	3 (5%)	5 (8%)	18 (27%)
Chiang Dao	21	13 (62%)	0	2 (10%)	0	1 (4%)	5 (24%)
Chiang Mai	20	7 (35%)	1 (5%)	2 (10%)	0	3 (15%)	7 (35%)
All	148	**55 (37%)**	**22 (15%)**	**20 (14%)**	**3 (2%)**	**14 (9%)**	**34 (23%)**

Overall, 37% of participants responded to the survey questions with WTP answers. A further 15% failed to provide WTP estimates due to their lack of income. In the context of the CVM, the form of these responses is reasonably clear cut, so we shall turn instead to focus upon the various protest responses.

Responses protesting against the CVM context itself were divided into those citing RFD incompetence as the motivation for an unwillingness to pay (9%), and other objections to the scenario presented (23%). The dissatisfaction of people with the RFD's handling of protected areas has already been documented (s. 9.4) and its motivation behind responses to the questions posed comes as no surprise. Other objections to the CVM survey form are generally thought to result from dissatisfaction with the payment vehicle, procedural fairness, or some other aspect of the institutional form used. In this case, motivations took the form:

- "It is the duty of the RFD to preserve the forest, I don't believe I should have to pay".
- "The RFD already has sufficient budget and staff".
- "What is being proposed contradicts ancient property rights, therefore the RFD has no right to the land".
- "I'm not sure the payment will ensure the conservation of the forest".

- "I don't know enough about the forest resources to say how much I would pay".

The remaining protest responses elicited were divided into those considered to reflect the existence of social norms with regard the use of forest resources (2%), and those motivated by the perceived lack of benefit accruing from the proposed change in forest resource use (14%). The responses allocated to the social norm category stated their motivation as simply "People shouldn't cut the forest", or "I do not want to condone the cutting of the forest". Attempts to get the respondent to elaborate further upon the reasoning behind their responses failed.

Responses categorised as being motivated by perceived individual benefit of the proposed changes included the responses:

- "If the RFD built an office here it would cause water pollution and the gradual reduction in the quality of the forest".
- "A RFD presence in the area would restrict people's use of the forest".
- "The output of the forest is limited, so I get no benefit from the forest".
- "The forest is located in the wildlife sanctuary, so I am unable to use it".
- "I don't believe there is scientific proof of the benefits of forest resources".

The above analysis has concentrated solely upon the aggregate figures. While the distribution of response forms across the categories within the 4 research sites varied slightly, considering the small sample sizes involved this is not surprising. Equally, the pattern of the distribution of response forms across the comparison of interest – economic verses non-economic values – is reasonably constant. Extending the analysis to the level of individual research locations could be justified and would be of interest if greater detail with regard the variation in the strength and form of cultural norms across the locations was available and could be measured independently. However, the limited nature of the description of cultural norms concerning forest resources (s. 9.3) restricts the possibility of a meaningful discussion of inter-location results. Hence, it is thought that extending the analysis to the level of the individual research locations raises more questions than it provides answers, and it makes more sense to focus upon the aggregated results.

9.6 Discussion and conclusion.

9.6.1 Interpretation: the commensurability of citizen and consumer values?

Applying these results to the non-commensurability discussion (s.9.2) requires, firstly, that responses are distinguished according to those pertaining to the valuation of forest resources, and those not. It is only the former that interests us here, so the motivation categories 'RFD incompetence' and 'other objections to the scenario' can be ignored at this stage.

A second relevant distinction is to separate resource values into those thought to reflect economic, teleological values, and those reflecting non-economic, non-teleological values. In accordance with accepted CVM practice, the 'WTP' and 'can't afford' responses can be categorised as representative of economic values. This is not in contention. The first question of concern is the motivations underlying CV survey protest responses, in particular, whether protest responses are motivated by the existence of social norms (s. 9.2.2). Of the remaining protest responses, the 'no perceived benefit' motivation reflects a neo-classical preference form, while the 'social norm' category is thought to reflect non-economic values. That is, of the 23 protest responses relevant to the investigation, 87% (20) correspond with economic values, and only 13% (3) reflect non-economic values.

Interpreting this result, it is suggested that value forms consistent with the neo-classical paradigm would tend to explain protest responses to CV surveys. That is, the majority of those who gave "protest responses" cited reasons worthy of *homo economicus*: zero WTP responses are not protests against monetary valuation, and the existence of social norms with regard the use of the resources did not significantly enter into people's motivations in valuation. However, to arrive at this result, the sample size has to be reduced to only 23, hardly significant. A second way to analyse the results, then, would be to start with the extent to which responses could be thought informed by social norms, and ask whether the existence of social norms is manifest in protest responses. This would allow investigation of the notion that social norms reflect non-economic values and are responsible for protest responses observed in CV surveys.

All participants within the sample are thought to possess the social norm of conservation with regard forest resources (s. 9.3). If we were to accept the notion that social norms are non-commensurable with monetary valuation, and the source of protests to the CVM (s. 9.2), it would be expected that all participants would protest based upon the existence of these norms. This, however, is plainly not the case. Of those responses thought to be concerned with forest resource values, 97% ('WTP', 'can't afford' and 'perceived benefit') are motivated by neo-classical economic values, while only 3% ('social norms') are protest responses based upon norms of forest resources. The existence of social norms does not stop responses being influenced by economic factors. Moreover, while still small, the sample upon which this result is based (100) is significantly larger than that applied above.

That respondents don't seem to suffer the ambivalence predicted when faced with a monetary valuation of social norms could be interpreted as implying that morality is characterised as having a teleological structure. That is, a lack of such ambivalence would suggest that social norms concerning the valuation of forest resources are consistent with the teleological structure of economic preferences. Social norms and economic preferences, or citizen and consumer values are commensurable.

9.6.2 Previous studies

Interestingly, this result contradicts some of the findings of previous attempts to elicit respondents perceptions of the CVM:

- Schkade and Payne (1994), exploring the thought processes of respondents while they completed a CV questionnaire, in contrast to evidence of 'economic thinking' found in the case of CV studies of familiar market commodities, reported few examples of individuals thinking about the economic trade-off between money-forgone and environmental benefits.
- Vadnjal and O'Connor (1994) found a significant proportion of respondents to a CV questionnaire expressed their motivation in responding as they did as not being consistent with economic thinking.
- Clark et al (2000), after discussions with respondents to a CV survey designed to appraise nature conservation policy in the UK, suggest that nature conservation

may not be susceptible to contingent valuation. They found that the CVM was rejected as an acceptable means of representing respondents values, and that valuing nature in monetary terms was incommensurable with deeply held cultural values.

However, other studies tend to support the result obtained:

- Brouwer et al's (1999) analysis of a CV survey of agents' monetary valuation of the recreational and amenity benefits of the Norfolk Broads revealed that 67% of respondents thought the results of the survey would be useful in decision-making, and 75% felt comfortable using monetary terms to express the importance they attached to an environmental public good.
- Kotchen and Reiling (2000) identify a relationship between pro-environmental attitudes and ethical values, and suggest that those with stronger pro-environmental attitudes are more likely to participate in the CVM valuation procedure.

Clark et al (2000) suggest that the difference in the results obtained can be explained by the different resources respondents are asked to value and the types of value attached to them. For instance, Brouwer et al's (1999) valuation of flood alleviation in the Norfolk Broads does not evoke the cultural or ethical values thought to be non-commensurable with monetary valuation. In order to further explore the possible reasons for these different results, we now identify caveats to the above analysis.

9.6.3 Caveats: the commensurability of citizen and consumer values?

It hardly needs stating that a considerable amount of further research in this area is required before any hard and fast conclusions can be drawn. The investigation attempted above is the first instance known to the author in which the CVM has been applied in the manner described. A thorough investigation of the influence of social norms on the valuation of natural resources of the form attempted above would require a detailed anthropological mapping of social norms to specific resources areas, a more extensive application of the CVM to the valuation of these specific resources, and the determination of the extent to which social norms influenced responses. This study has

attempted a very simplified version of such an investigation. However, we shall focus here on a number of specific issues that have been raised in connection with the method employed.

Firstly, there are a number of concerns with the context in which the CVM has been employed and the particular hypothetical scenario employed:

(a) The CVM literature, especially that relating to the open-ended question format employed, emphasises the importance of the experience participants have in trading the resources in question (Hanley and Spash, 1995). While its is reasonable to say that none of the sample has experience of the monetary valuation of forest resources, those in Mae Paa Sao have little experience of market transactions at all, calling into question the validity of the responses elicited.

(b) It has been suggested that alternative conservation methods would be preferred by the participants than the improvement of RFD facilities. Specifically, the Karen would prefer to conserve forest resources through their own communal resource use regulations. And indeed this is the case. However, responses to the hypothetical scenario motivated by such concerns would be expected to be picked up within the survey and categorised appropriately. In this case, such motivations would be classified as reactions against the scenario and would not enter into any interpretation of the forms of forest values.

(c) It has also been commented that, while social norms may be non-commensurable with monetary valuation, the proposed increasing of the effectiveness of the RFD in conserving the environment could well be interpreted as corresponding with such norms. Hence, willingness to contribute towards such a proposal might not be that unexpected in such circumstances. However, it is exactly the ability to translate norms into monetary valuation, and their consistency with economic valuation that is at issue. Whether or not the social norm and the project valued monetarily work towards the same end is no consequence for the debate being considered: whether citizen values reflect concerns of individual well-being. It is the form, rather than the direction of values that is being investigated.

Turning to the ability of the investigation to contribute to the research question, the crux of the argument that 'citizen' and 'consumer' values are commensurable depends on the tolerability of the conjecture that morality has a teleological structure. An important criticism that has been raised in reaction to the above investigation is that the CVM, with its foundations in the neo-classical paradigm, presupposes the existence of values with such a teleological structure. Thus, it is argued, as a method for identifying the interaction of consumer and citizen values it is fundamentally flawed. In response to this criticism it must be pointed out that it is exactly such criticism upon which the methodology is based. That is, the methodology is not concerned with the monetary valuations elicited by the CVM but with protests against the presuppositions employed with the CVM. Hence, it is suggested that the method has already incorporated this criticism and thus does not suffer from any such presupposition. The possible existence of citizen values is acknowledged in designing the CV survey.

A related concern, is that, while social norms have been identified for the participant population, the strength and specific nature of the norms has been given no attention. The accuracy of the interpretation presented above requires that the activation of the relevant social norms be assured. While the sample is strongly biased towards responses from Mae Paa Sao (28%) and Baan Tham (45%), and it might be expected that, of the sites researched, traditional norms could be expected to have been maintained better in these two sites due to their relative isolation, the same point stands. The general overview of the presence of social forest use norms in northern Thailand tells us nothing of the exact incidence of norms in the locations surveyed, or the activation of these norms within the investigation. The presentation of social norms has been oversimplified. While the survey design was inspired by a literature identifying protest responses as manifestations of ambivalence towards the monetary valuation of moral norms (s. 9.2), suggesting that the CVM in general is able to activate relevant social norms, the caveat that remains is that the specific CV survey employed may have failed to activate moral norms. It is a similar point that Clark et al (2000) use to explain the different results obtained in examining agents' responses to attempts to monetarily value environmental resources – the non-existence of moral norms (s. 9.6.2).

Having said that, the only way such an investigation can be thought to contribute to the question of whether the structure of morality is teleological or not is either if a monetary

valuation is motivated by the holding of a moral norm, or if a protest response is motivated by the holding of a moral norm. It is only in these cases that the relationship between moral norms and economic preferences can be observed explicitly. All other responses require assumptions to be made regarding how moral norms relate to the motivations underlying responses. Thus, for instance, in the above analysis, identifying the existence of moral norms concerned with the use of forest resources and protest responses motivated by economic benefits as evidence of the teleology of moral and economic values requires that we assume moral norms have been activated and considered in the valuation process.

Unfortunately, in the investigation undertaken, it was only protest responses that were followed by discussions of motivations, so we cannot say whether non-protest responses were motivated by moral values. Moreover, the small number of protest responses motivated by moral norms is inconclusive. Thus, it would seem that the investigation undertaken still suffers from Mitchell and Carson's (1989) 'fallacy of motivational precision'. In concluding with regard to the structure of morality, assumptions have to be made regarding the existence and activation of moral norms. The next chapter examines this failing of the investigation in more detail.

10. The unfalsifiability of economic 'laws': methodological issues in the predictive success of economics.

10.1 Introduction

In chapter 9 we saw our attempt to determine the structure of morality and its relationship with economic preferences fall short due to the requirement of making assumptions with regard beliefs. That is, we failed to overcome the 'fallacy of motivation precision'. Ever since its eighteenth-century inception, the science of economics has been methodologically controversial (Hausman, 1994). This chapter reviews methodological discussions of economics to suggest that this problem encountered in testing the structure of environmental values is a more general criticism of economics and social sciences. That is, the problem with most conceptions of rationality within the social sciences, including that of neo-classical economics, is that they remain untestable as causal theories. Neither economists nor their critics can create a definition of "rationality" that avoids circularity. The approach employed attempts to work back from behaviours to beliefs/desires and, in doing so, requires further assumptions about the nature of the mind, as there are an infinite number of different combinations of beliefs and desires that can lead to an action.

The next section reviews the suggestion that economics has experienced a lack of predictive success. It is suggested that this failure is the result of economists' maintenance of a deductivist methodology. In particular, the unfalsifiability of the folk psychology employed within the social sciences results in the naturalistic project's failure to satisfy the criteria for a scientific, causal theory (s. 10.3). However, it is exactly the deductivist epistemology espousing the notion of causal theory that economists have so long employed as their goal (s. 10.4). Attempts to defend this deductivist perspective within economics (s. 10.5) tend to founder on the recognised lack of predictive success of economics (s. 10.6). Finally, the rejection of the deductivist project is manifest within the adoption by economists of rival philosophies, including hermeneuticism (s. 10.7) and realism (s. 10.8).

10.2 The lack of predictive success in economics.

Neo-classical economics is not only challenged at the conceptual level but also by doubts about the predictive success of the theory for aggregate phenomena. Rosenberg (1986: 127) tells us that neo-classical microeconomics is characterised by a "want of empirical improvement over the course of a century or two, [and a] relative indifference to this fact of neo-classical economists". That is, the failure of economics is not methodological, or conceptual, but empirical: its failure to explain the causes and consequences of economic choice with anything like accuracy and precision (Rosenberg, 1994).

Leontief (1985) denies that economics has ever improved its predictive success, suggesting that this is the result of the indifference of economists to testing the assumptions of most mathematical models, and "it is precisely the empirical validity of these assumptions on which the usefulness of the entire exercise depends" (1985: 63). He expresses his disgust at the unreality of most academic articles in economics:

> Nothing reveals the aversion of the great majority of present-day economists for systematic empirical inquiry than the methodological devices they employ to avoid or cut short the use of concrete factual information. [...] Page after page of professional economic journals are filled with mathematical formulas leading the reader from sets of more or less plausible but arbitrary assumptions to precisely stated but irrelevant theoretical conclusions (Leontief, 1982: 104).

While Rosenberg (1986) acknowledges the existence of successful prediction within economics, he goes on to point out that it is accompanied by a vast amount of unsuccessful predictions. Moreover, "the successful and unsuccessful predictions follow from exactly the same parts of the theory combined with exactly the same measuring devices. So that the piling up of positive instances is little reason to project the predictates in questions" (Rosenberg, 1986: 130).

The empirical failure of economic theory can be illustrated by its reaction to the crisis it faced in the form of the great depression, losing faith in the notion that Walrasian

general equilibrium was the state towards which markets must, in the long run, move. The main reaction to this was Keynesianism. However, come the simultaneous unemployment and inflation of the 1970s, Keynesianism was rejected in favour of a return to the neo-classical tradition. Rosenberg (1994) interprets this move as a manifestation of the fact that economics is insulated from empirical influences. While economists have not forgotten the great depression, their interest in it seems limited to showing that the Walrasian approach is consistent with it. Rosenberg is supported in this argument by Blaug (1976: 363) who states that:

> Much empirical work in economics is like playing tennis with the net down: instead of attempting to refute testable predictions, economists spend much of their time showing that the real world bears our their predictions, thus replacing falsification, which is difficult, with confirmation, which is easy

Lawson (1997: 4) identifies the increased recognition of the problems facing economics among its own ranks:

> [C]ontemporary economics, including its traditional exemplar general equilibrium theory, recently seems also to have been recognised as a project in dire straights. The upshot here is a bout of articles with such titles as 'The Intrinsic Limits of Modern Economic Theory: The Emperor has no clothes' (Kirman, 1989), or books with such titles as *Economics in Disarray* (Wiles and Routh, 1984), *The Crisis in Economic Theory* (Bell and Kristol, 1981) or 'The Death of Economics' (Ormerod, 1994).

Lawson goes on to identifying the manifestation of this critique of economics within popular culture:

> On the outside, for example, the (UK) *Observer Magazine* [...] concludes that 'there's no such thing as economics. It's all voodoo, bluff and pseudo-science'. *New Scientist* [...] even carried sketches of economists forecasting economic variables by reading lines on the palms

> of their hands and of econometricians pushing numbers around while blindfolded (1997: 3).

However, despite these strong views by some eminent economists, there is still substantial support within the profession for the claims made by economics. As Rosenberg (1992: 98) tells us:

> It is easy to pile up Nobel laureates on either side of the question of whether economics has met the test of empirical progress. One side will include Leontief and Herbert Simon, holding that traditional economic theory leaves much wanting; [the other] side will include Samuelson, Friedman, Debreu, and others. [...] However, the parties to this debate do not share a common criterion of predictive power or empirical confirmation, because there is none.

10.3 Folk psychology and the failure of scientific economics.

It is argued that the lack of predictive success of economics results from the problems suffered by the naturalistic project within the social sciences, of which mainstream economics is a part. In particular, the unfalsifiability of folk psychology is thought to result in the naturalistic project's failure to satisfy the criteria for a scientific, causal theory[69].

Rosenberg (1986, 1992, 1994, 1995) identifies folk psychology and its attendant problems as underlying critiques of microeconomic theory. He suggests that the failure of economics is not methodological, or conceptual, but empirical. Specifically, it rests upon the search for laws that will express the relations between the categories of preferences, expectations, and actions. However, attempts to find such laws have failed due to the impossibility of improving the predictive power of a theory based upon such folk psychological characteristics.

[69] See s. 5.3 for a more detailed discussion of the unfalsifiability of folk psychology.

The approach employed attempts to work back from behaviours to beliefs/desires and, in doing so, requires further assumptions about the nature of the mind, as there are an infinite number of different combinations of beliefs and desires that can lead to an action. That is, the only way to measure beliefs and desires is to make assumptions about the mind, such as the rational theory of choice. It was a similar problem that the empirical investigation in chapter 9 suffered from[70]. Hence, the theory cannot be tested though measurement of its "initial conditions", as such measurement relies on the theory itself, which therefore cannot be improved. Thus:

> The failure of economics to uncover laws of human behaviour is due to its wrongly assuming that these laws will trade in desires, beliefs, or other cognates. And the system of propositions about markets and economies that economists have constructed on the basis of its assumptions about human behaviour is deprived of improving explanatory and predictive power because its assumptions can't be improved in a way that transmits improved precision to their consequences (Rosenberg, 1994: 383).

The predictive power of economic theory requires that the instruments employed to predictively apply it to initial conditions be independent of the theory being applied. That is, the reliability of the instrument we use to measure the strength of preferences and the degree of belief must not hinge on the truth of the theory of rational choice. However,

> This is just what we cannot get for the theory of rational choice, because of the nature of desires, beliefs, and actions. There is no way to tell what a person believes unless we already know what he wants and how he acts; no way to tell what a person wants unless we know what he believes and how he acts; no way to tell what a person will do unless we know what he wants and believes. The only way two of these three factors can lead us to a prediction about the third is via the theory of rational choice (Rosenberg, 1992: 126).

[70] See s. 11.2 for a further discussion of this comparison.

Thus, it is suggested that rarely will confirming and disconfirming test results be unambiguously interpretable in economics. Caldwell (1994a) backs up this argument with five observations of economic analysis:

(i) Initial conditions are numerous.
(ii) Some initial conditions cannot be independently checked.
(iii) The absence of falsifiable general laws.
(iv) Test of models are not tests of theories.
(v) Empirical data may not accurately represent theoretical constructs.

The upshot of the folk psychological character of the explanatory variables employed within economic theory is that we cannot expect the theory's predictions and explanations of the choices of individuals to exceed the precision and accuracy of the common-sense explanations and predictions with which we have all been familiar since prehistory (Rosenberg, 1992). This notion is supported by Sen when he states that:

> The rationale for this approach seems to be based on the idea that the only way of understanding a person's real preference is to examine his actual choices, and there is no choice-independent way of understanding someone's attitude towards alternatives [...]. Behaviour, it appears, is to be explained in terms of preferences, which are in turn defined only in terms of behaviour. Not surprisingly, excursions into circularity have been frequent (Sen, 1977: 323- 324).

Thus, the employment of folk psychology within economics is thought to result in its failure to satisfy the criteria for a scientific, causal theory. However, it is exactly the search for causal theories underlying the deductivist epistemology that economists have so long employed as their goal.

10.4 The deductivist method in economics.

Methodology in economics has been particularly influenced by empiricism and logical positivism (van den Bergh et al, 2000). As Lawson (1997) states in his attack on the epistemological basis of economics:

> I do not think that it is contentious to observe that deductivism, [...] and in particular the conception of laws which underpins it [...], characterises contemporary mainstream economics. [...] The positing of strict constant event conjunctions, interpreted as 'axioms' or 'assumptions', is a condition of modern 'economic theorising'. [...] It is implicitly taken for granted that the deductivist model of explanation is universally valid (Lawson, 1997: 18).

And:

> Although deductivist explanation does not usually figure explicitly in characterisations of the [economic] project provided by its proponents, its centrality cannot be doubted. While the deducibility requirement, that the explanandum be deducible from the explanans, is more or less always transparent, the covering-law aspect, namely that at least one universal law (of the form 'whenever event x then event y) be specified, is usually met by the axioms (ibid.: 91).

And:

> In short, if a reliance upon the deductivist mode of explanation is not always explicit in orthodox economics, it is not denied. Rather a presumption of its centrality and indeed universality in science is essentially taken for granted; so much so that any attempted defence or justification of it is considered unnecessary. Those critics who venture to suggest otherwise tend merely to be summarily dismissed (ibid.: 92).

For many, Robbins' (1932) *Essay on the nature and significance of economic science* still provides the most acceptable definition of what economics is about. He concludes:

> In the light of all that has been said the nature of economic analysis should now be plain. It consists of deductions from a series of postulates, the chief of which are almost universal facts of experience present whenever human activity has an economic aspect, the rest being assumptions of a more limited nature based upon the general features of particular situations or types of situations which the theory is to be used to explain (1932: 99 – 100).

10.5 The defence of the deductivist epistemology within economics[71].

Perhaps the first person to undertake the task of defending the poor empirical record of the deductivist tradition in economics was John Stuart Mill. In his *On the Definition of Political Economy and the Method of Investigation Proper to it* (1836) – one of the first discussions of methodology in economics – Mill proposed the "deductive method" for making inferences from observation to scientific theories. This involves three steps: induction, inference to causes and laws from observations; logical and mathematical computations to determine the consequences of the causal claims; and verification by observation (Achinstein, 2000).

Despite Mill's emphasis on the empirical, he still showed respect for the untested and sometimes disconfirmed conclusions of economics. Mill reconciled these positions by turning to the peculiar nature of the "moral science". For Mill the basic premises of economics are either psychological claims, which are firmly established in introspection, or technical claims, such as the laws of diminishing returns, which are established directly by experimentation. However, within this "deductive method", Mill places emphasis on the *à priori* in the derivation of knowledge about the "moral sciences", while the *à posteriori* is relegated to its verification:

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[71] Epistemological positions employed by economists but overlooked in this discussion include rationalism (Hollis and Nell, 1975; and Mises, 1949, 1979), as well as Imre Lakatos's "methodology of scientific research programmes" (Latsis, 1976; Blaug, 1980; and Weintraub, 1985).

> Having now shown that the method *à priori* in Political Economy, and in all the other branches of moral science, is the only certain or scientific mode of investigation, and that the *à posteriori* method, or that of specific experience, as a means of arriving at truth, is inapplicable to these subjects, we shall be able to show that the latter method is notwithstanding of great value in the moral sciences; namely, not as a means of discovering truth, but of verifying it, and reducing to the lowest point that uncertainty before alluded to as arising from the complexity of every particular case, and from the difficulty (not to say impossibility) of our being assured *à priori* that we have taken into account all the material circumstances (1836: 61).

The latter role of empirical investigation, the reduction of uncertainty in circumstances of complexity, points to Mill's suggested reason for economics' poor predictive success: the complexity of the economy means that economics is "hypothetical". That is, the complexity of the number of causal factors involved in economic prediction means that the deductive method cannot be directly applied. Instead, he suggests, economics is a science of "tendencies", which may be overwhelmed by factors left out of the theory:

> The discrepancies between our anticipations and the actual facts is often the only circumstance which would have drawn our attention to some important disturbing cause which we have overlooked (ibid.: 62).

And,

> The error, when there is error, does not arise from generalising too extensively; that is, from including too wide a range of particular cases in a single proposition. Doubtless, a man often asserts of an entire class what is only true of a part of it; but his error generally consists not in making too wide an assertion, but in making the wrong kind of assertion: he predicated an actual result, when he should only have predicated a *tendency* to the result – a power acting within certain intensity in the direction (ibid.: 67).

Mill, then, established economic premises as specifying how causal factors operated, but not providing universal laws. Instead, such premises represented tendencies, which are subject to "disturbances" or "interfering cause", which cannot be specified in advance. Hence, *ceteris paribus* clauses play a crucial role in the formulation of tendency "laws", allowing the justification of economic premises even in the face of empirical failure (Boylan and O'Gorman, 1995).

Economic methodology was dominated by Mill's deductivism and the notion that premises were not impugned by their empirical failure until the 1930s, most notably in John Neville Keynes' (1917) *The Scope and Method of Political Economy*, and Lionel Robbins' *An Essay on the Nature and Significance of Economic Science* (1932). However, with the intrusion of logical positivism into economic methodology came the first important changes in the profession's view on the justification of economic theory.

In 1938, Terence Hutchinson's *The Significance and Basic Postulates of Economic Theory* challenged the deductivist methodology which had so far dominated economics, and introduced economists to the influence of the logical positivists[72]. Hutchinson's central criticism of theoretical economics is that it does not have testable implications. That is, the propositions of pure theory are pure tautologies or are so circumscribed by *ceteris paribus* clauses that their interpretation and testing are impossible:

> If the finished propositions of a science, as against the accessory purely logical or mathematical propositions used in many sciences, including Economics, are to have any empirical content, as the finished propositions of all sciences except the Logic and Mathematics obviously must have, then these propositions must *conceivably* be capable of empirical testing *or be reducible to such propositions* by logical or mathematical deduction. They need not, that is, actually be tested or even *practically* capable of testing under present or future technical conditions or conditions of statistical investigation, nor is there any sense in talking of some kind of "absolute" test which will "finally" decide whether a proposition is "absolutely" true or false. But it must be possible to indicate

[72] For a more detailed treatment of logical positivism, see s. 3.3.

> intersubjectively what is the case if they are true or false; their truth or falsity, that is, must take some conceivable empirically noticeable difference, or some difference must be directly deducible therefrom (1960: 9).

Consequently, he suggested, the statements of pure theory in economics are empty definitional and logical truths. Contrary to the previous deductivist methodology, Hutchinson argued that economics, like the empirical sciences, must formulate and test empirical generalisations, that theorising should be based upon empirical investigation, a line of argument supported by the Operationalism[73] of the likes of Paul Samuelson (1938, 1948).

In response to the work of Hutchinson and Samuelson, economists undertook empirical research that tested and questioned the acceptability of the fundamental propositions of neo-classical economics (Hall and Hitch, 1939; Lester, 1946, 1947)[74]. In turn, paralleling the arguments for a more instrumentalist logical positivism in the philosophy of science, economists argued that this critique propounded an erroneous methodological thesis which insisted on testing directly the assumptions of economics, rather than focusing on their empirical consequences, the empirical implications of the use of assumptions (Machlup, 1946, 1947). As Machlup states:

> I had pointed out that fundamental postulates, such as the maximisation principle, are "not subject to requirement of independent verification"; they are considered as verified, together with the whole theory of which they are a part, when the deduced consequences of their conjunction with an evident and substantive change and with assumed conditions relevant to the case are shown to correspond to observed events (1956: 169).

Perhaps the dominant work in methodological thinking in economics in the post-war period, and one which continued this instrumental logical positivist approach, was

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[73] The aim of which was to derive "operationally meaningful theorems", based upon "a hypothesis about empirical data which could be refuted under ideal conditions".
[74] For a review of attempts to empirically investigate the propositions of neo-classical economics, see chapter 8.

Milton Friedman's *The Methodology of Positive Economics* (1953). Today economists do not deny that their assumptions about human nature are unrealistic, but instead claim, following Friedman, that the absence of realism does not diminish the value of the theory, as it works to produce valid predictions. Instead of viewing the fundamental claims of microeconomic theory as a body of statements capable of being true or false, followers of Friedman treat them as a set of heuristic tools, useful instruments for organising economic observations.

Friedman based his approach on the validity of theory as predictive capacity rather than explanatory power[75]. He declared this his aim for positive economics, and used it to defend economics against the criticism of its unrealistic general axioms, arguing that the idea behind economics was to provide a system of generalisations that can be used to make accurate predictions. Criticism of economics based upon the empirical assessment of its assumptions was mistaken, as this assessed economics on the basis of its role as language (analytic statements) rather than as substantive prediction. From this perspective, theories are simply linguistic/conceptual instruments for making translations from one set of facts to another. The only question of interest, suggests Friedman, is which model results in the more successful predictions:

> A theory cannot be tested by comparing its "assumptions" directly with "reality." Indeed, there is no meaningful way in which this can be done. Complete "realism" is clearly unattainable, and the question whether a theory is "realistic" enough can be settled only by seeing whether it yields predictions that are good enough for the purpose in hand or that are better than predictions from alternative theories. Yet the belief that a theory can be tested by the realism of its assumptions independently of the accuracy of its predictions is widespread and the source of much of the perennial criticism of economic theory as unrealistic. Such criticism is largely irrelevant, and, in consequence, most attempts to reform economic theory that it has stimulated have been unsuccessful (1953: 206).

In support of this position, Boland (1979: 508) states that "Since no one has yet solved the problem of induction, one is always required to assume the truth of his premises or assumptions". In other words, every theory requires untestable axioms, axioms that whose validity in the future cannot be known. Therefore, instrumentalism may guide science, which means that the theory that is best in terms of conditional or future prediction is most desirable.

10.6 Rejecting the deductivist project in economics.

Friedman's defence of economics against the unreality of its assumptions based upon its predictive success is undermined by the argument that economics suffers from a lack of successful prediction (s. 10.2). Simon (1963) turns the lack of predictive success of economics against Friedman's instrumental logical positivism, suggesting that the lack of evidence concerning the predictions of economic theories, such as the notion that the market produces profit maximising prices, means that the testing of theories requires that evidence concerning their assumptions be considered. This argument is supported by Rosenberg (1992: 61 – 62) when he says:

> A cursory examination of the history of neoclassical theory shows that the intended domain of economic explanation certainly included the very phenomena described in the assumptions of neoclassical theory [...] Economists may confidently announce, along with Hicks, that "economics is not in the end very much interested in the behaviour of single individuals". But this interest will not prevent false assumptions about individuals from bedevilling predictions about the economic aggregates made up of them.

Simon (1963) then takes his criticism of Friedman further, arguing that science is not based upon unreal assumptions. He suggests that the role of the assumptions of science is not described according to their unreality, but that they sufficiently approximate the real world to make their postulation interesting. Thus, instead of the principle of unreality, economics should be based upon the "principle of continuity of

[75] A philosophical position borrowed from the logical positivist A. J. Ayer (1936). See section 3.3 for a

approximation": if conditions in the real world approximate sufficiently well the assumptions of an ideal type, the derivations from these assumptions will be approximately correct.

Lawson (1997: 111) lends his support to this critique of the unreality of the assumptions of economics:

> Formally, if X implies Y, and we know that X is [mainly] false as a set of claims about actual or possible states of social reality, we can infer *nothing* about the real possibility of Y. Despite pretensions to the contrary, orthodox 'theory' cannot shed light on the real possibility of situations occurring in society which might be characterised as types of economic equilibrium. [...] There is little to be gained by employing assumptions which specify situations which are already known to be non-actual and *non-achievable*.

In support of Simon's criticism of Friedman, most important philosophers of science have almost universally rejected Friedman's position (see Boland, 1979). It is widely agreed that the purpose of theory is to explain. Otherwise, when predictions prove to be valid, we do not know why, and hence are unable to foretell under what conditions they will continue to hold or fail, or may need to be adapted.

An alternative approach, then, to the lack of predictive success in economics is to reject the deductivist project in economics. This position is neatly summarised in the work of Lawson:

> Because the project rests upon an implicit commitment to identifying or formulating regularities of the form 'whenever event x then event y', [...] its legitimate application is restricted to those very special situations in which scientifically significant event regularities are [...] forthcoming – which, in the economic sphere, may be hardly any situation at all (1997: 93).

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more detailed treatment of this position.

And,

> My central thesis is briefly stated. The essence of contemporary mainstream economics does not lie at the level of substantive theory as most of its critics suggest, but at the level of methodology. Specifically, the most fundamental feature is a generalised insistence on the deductivist mode of explanation, including an unsustainable commitment to the 'whenever this then that' structure of 'laws'. And it is in this very essence that the perpetual disarray of the subject is rooted (ibid.: 282).

The limitations of the deductivist methodology in the social sciences have long been recognised[76]. Rival philosophies of science have thus been developed that to different extents reject the positivist tradition. Two such philosophies discussed in previous chapters are the interpretative or hermeneutic position (s. 5.5) and the scientific realist perspective (s. 5.6). In the remainder of this chapter we briefly review attempts to apply each of these traditions to economics.

10.7 Hayek's Subjectivism

The Duhem-Quine underdetermination hypothesis (s. 3.4) tells us that a single hypothesis cannot be falsified, as it is invariably conjunctions of hypotheses that are being tested. That is, it is difficult to falsify theories according to the Popperian criteria, as we can never be sure that the main hypothesis has been put out to falsification on its own, and that other auxiliary hypotheses are not involved. Accordingly, we should not expect to find any evidence for the maximisation hypothesis, but at best refutations stating that decisions were inconsistent with maximisation (van den Bergh et al, 2000). For instance, the maximisation hypothesis may be refuted because the auxiliary hypothesis of fixed preferences is incorrect. One cannot test consistency of behaviour over time unless one has precise information about the changes in preferences. In turn, Boland (1981) argues that neoclassical theory cannot be tested since preferences are non-observable, and empirical surveys, introspection and direct observation are

[76] See chapters 3 and 5 for a summary of these positions.

unreliable. Thus, the maximisation hypothesis in reality is just a metaphysical assumption which is not to be subjected to any empirical test: it is the paradigm (see Kuhn s. 3.5) of neoclassical economics (van den Bergh et al, 2000).

The problems faced in attempting to test the claims of economics as causal theories has led opponents of the naturalisation project to suggest that the social sciences are justified on alternative non-naturalistic foundations, and that attempts to treat beliefs and desires as the causes of action are the result of conceptual confusion. Causal explanation is rejected as the aim of the social sciences. Instead, the social sciences are thought to explain behaviour by rendering it intelligible or meaningful, or showing it to be reasonable in the light of beliefs and desires[77].

The most significant figures associated with this interpretive position in economics are Hayek and Shackle[78]. The hermeneutic nature of Shackle's work is reflected in Antony Giddens' reference to him as "The Sartre of Economics". His position is perhaps best expounded in his *Epistemics and Economics* (1972). However, for present purposes we shall focus on the work of Hayek. He criticised the reliance of mainstream economists upon positivist methods and procedures borrowed, as he saw it, from the natural sciences, methods which he assessed as contributing scarcely anything to our understanding of social phenomena (Lawson, 1997). In accordance with the hermeneutic tradition, he argued that the explanatory strategy of the social sciences is no longer revealing causes and effects but making action intelligible or meaningful, or showing them to be reasonable in the light of beliefs and desires

Hayek's first step in elaborating a non-positivist perspective on social theorising is found in his *Scientism and the Study of Society* (1942 – 44). However, the motivation for his 'scientism essay' is found in his *Economics and Knowledge* (1937). Here Hayek considers the problem of economics to be the requirements for the attainment of equilibrium. He defines the solution to this problem as the requirement that agents' actions are co-ordinated:

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[77] For a more detailed review of this argument see s. 5.5.

[78] Another prominent supporter of the anti-naturalist tradition within economics is McCloskey (1985). McCloskey, however, goes further and argues for an anti-methodology, classifying economics as mere rhetoric, a process of persuasion. He goes on to substitute for philosophy the abolition of economics as an

> Actions of a person can be said to be in equilibrium in so far as they can be understood as part of one plan. Only if this is the case, only if all these actions have been decided upon at one and the same moment, and in consideration of the same set of circumstances, have our statements about their interconnections, which we deduce from our assumptions about the knowledge and the preferences of the person, any application (1937: 36).

Starting with this requirement for the achievement of equilibrium, Hayek then goes on to consider the possibility of attaining this requirement. He identifies two cases in which the subjective data of individuals, and the plans that are derived from them, will necessarily agree:

> Plans are mutually compatible and [...] there is consequently a conceivable set of external events that will allow all people to carry out their plans and not cause any disappointments, [and] that individual subjective sets of data correspond to the objective data (ibid.: 39 – 40).

Hayek favours the first of these:

> For a society then we can speak of a state of equilibrium at a point of time – but it means only that compatibility exists between the different plans which the individuals composing it have made for action in time. And equilibrium will continue, once it exists, so long as the external data corresponds to the common expectations of all members of society. The continuance of a state of equilibrium in this sense is then not dependent on the objective data being constant in an absolute sense (ibid.: 41).

And again, the tendency towards equilibrium "can hardly mean anything but that under certain conditions the knowledge and intentions of the different members of society are supposed to come more and more into agreement" (ibid.: 44).

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organised body of knowledge, as there is no hope for improvement in economic knowledge. For a further

Turning to the conditions under which this tendency is supposed to exist, Hayek points out that economics generally makes it appear as if the question of how equilibrium comes about were solved, but that this demonstration amounts to no more than the apparent proof of what is already assumed. That is, the device usually adopted for this purpose is the assumption of the perfect market where every event becomes known instantaneously to every member. However, Hayek argues,

> The statement that, if people know everything, they are in equilibrium is true simply because that is how we define equilibrium. [And] it is clear that if we want to make the assertion that under certain conditions people will approach that state we must explain by what process they will acquire the necessary knowledge (ibid.: 45).

Hayek does not venture an explicit explanation of the source of such knowledge. However, an indication of his opinion can be attained from the following passage:

> The conclusion [...] which we must draw is that the relevant knowledge which we must possess in order that equilibrium may prevail is the knowledge which he is bound to acquire in view of the position in which he originally is, and the plans which he then makes. [...] To show that [...] the spontaneous actions of individuals will [...] bring about a distribution of resources which can be understood as if it were made according to a single plan [...] seems to me indeed an answer to the problem which has sometimes been metaphorically described as that of the "social mind" (ibid.: 51 – 52).

In arriving at this conclusion, Hayek is arguing that economic theory avoids demonstrating how a state of equilibrium is brought about by assuming that all agents have the same *objectively* correct perceptions (Caldwell, 1998). However, he suggests, agents' perceptions are not objective but subjective, and equilibrium is brought about

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discussion of postmodernism within economics see Burczak (1994).

through the compatibility of these subjective perceptions through the process of construction of the "social mind".

Building on his rejection of universal correct knowledge Hayek turned, in his 'scientism essay', to enquire how it is that despite limitations in human knowledge, some kind of order in society comes about. As in his *Economics and Knowledge*, in response to this question, Hayek turns to subjectivism, the most significant implication of which is that for the social sciences, including economics, the beliefs, desires and actions of individuals are not matters to be explained, but merely items to be grasped:

> It is important to observe that in all this the various types of individual beliefs or attitudes are not themselves the object of our explanation, but merely the elements from which we build up the structure of possible relationships between individuals. Insofar as we analyse individual thought in the social sciences the purpose is not to explain that thought but merely to distinguish the possible types of elements with which we shall have to reckon in the construction of different patterns of social relationships. It is a mistake, to which careless expressions by social scientists often give countenance, to believe that their aim is to explain conscious action (1942-4: 68).

It is such statements that cause people to interpret Hayek's subjectivism as hermeneutic: social life is concept-dependent. However, Hayek's exact philosophical position is not entirely certain and much more complex than can be done justice to here. This can be illustrated by an exchange between Theodore Burczak and Bruce Caldwell in volume 10 of *Economics and Philosophy*. Both authors struggle relating the ambiguities of Hayek's subjectivism to scientific or hermeneutic positions. Burczak states

> It is not, of course, uncontroversial to associate Hayek with post-modernism. Hayek, to my knowledge, was never a direct participant in the debates surrounding post-modernism, and his brief remarks on such figures as Michel Foucault [...] are negative. Moreover, [...] at crucial junctures Hayek's economics depends upon teleological and determinist arguments. Nevertheless, I believe it is possible to discern the outlines of

> a nonessentialist, postmodern economics in Hayek's work (Burczak, 1994a: 32).

Favouring a scientific subjectivist interpretation of Hayek, rather than Burczak's hermeneutic subjectivism, Caldwell states:

> Hayek's resistance to hermeneutics is harder to document because [...] he wrote so little about it. It is probably better to characterise Hayek as a non-hermeneut rather than as an anti-hermeneut, to indicate that it is a path that he chose not to follow rather than one that he vigorously opposed (Caldwell, 1994b: 308).

Burczak responds:

> Hayek's work opens many doors. My paper [...] aims to show how his subjectivism opens the particular door to what might be called postmodern, hermeneutical economics. To be sure, I do not believe that Hayek himself stepped through this door. I agree with Bruce Caldwell's assertion that Hayek was committed to a "scientific" subjectivism rather than a "hermeneutic" subjectivism (1994b, 315).

However, Burczak goes on to outline certain elements of Hayek's writing that are:

> quite consistent with [his] subjectivism, but [...] far more compatible with a postmodern hermeneutic subjectivism than with a scientific subjectivism, [pointing to] the possibility that our knowledge of society is theory- and rhetoric-laden "all the way down" (1994b: 316).

Thus, the two agree that Hayek's post-modernism is an unintended consequence of his writings, because in the few places where Hayek wrote about post-modernism he was negative about it; that Hayek's work coheres with the hermeneutic but not the anti-humanist variant of post-modernism; and that certain aspects of Hayek's thought are inconsistent even with the hermeneutic version (Caldwell, 1994b). That is, Hayek argued with modernism, and in doing so often made post-modern sounds, but in the end

he resisted taking the "interpretive turn" toward a more thorough-going hermeneutics. However, Hayek's writings "opened the door" to hermeneutic thought in economics.

10.8 Lawson's Realism[79]

In accordance with the scientific realist alternative to positivism presented in s. 5.6, Lawson (1989a, 1989b, 1994, 1997, 1999) proposes a realist economics, thus maintaining the naturalist project, but rejecting deductivism:

> How are the problems and failings of modern economics to be explained and resolved? [...] These problems: (1) result ultimately from a widespread, rather uncritical, reliance by economists upon a questionable conception of science and explanation; and (2) can be resolved through replacing this conception with a more adequate one, derived by way of adopting an explicit *realist* orientation (Lawson, 1997: 15).

And,

> Success at economic forecasting is unlikely. [...] The one clear implication is that without attention to context-specific structures and mechanisms, there is little basis for supposing that x will follow from y on this occasion merely because it happened before. [...] If event prediction is usually infeasible it is in any case not required for a successful science of economics. For it can now be accepted that the primary aim of science is not the illumination or prediction of events at all but the identification and comprehension of the structures, powers, mechanisms and tendencies which produce and facilitate them (ibid,: 287 – 288).

Lawson (1997) suggests that the deductivist epistemology requiring constant conjunctures of events does not 'fit' the open social system that is the subject of economics. In response to this, he suggest that a scientific realist ontology overcomes

the problems of deductivism while maintaining the naturalistic enterprise. Lawson's (1997) starting point is to identify two problems of contemporary economics: firstly, its inability to identify event regularities discussed above; secondly, the inability to reconcile real human choice with economic modelling. That is, modelling choices would suggest that they are deterministic, negating the possibility of real choice: "[Choice requires that] if under conditions x an agent in fact chose to do y, it is the case that this same agent could really instead have not done y" (Lawson, 1997: 30).

Focusing on the notion of choice, Lawson applies a scientific realist perspective to search for the intransitive mechanisms underlying human choice in order to reformulate economic methodology. He suggests that real choice requires humans to be intentional. In turn, intentionality is bound up with knowledgeability, as humans must have some knowledge at least of the conditions that render their intended acts feasible. In turn again, knowledge presupposes a degree of endurability in the objects of knowledge sufficient to facilitate their coming to be known. Now, Lawson argues, if, as widely reported, scientifically significant event regularities do not often occur in the social realm, the enduring objects of knowledge that condition actual human practices must lie at a different level, at that of the structures which govern, but are irreducible to events, including human activities.

The fact of human intentionality and choice indicates that there are real material causes or structures which facilitate intentional action. The question, then, is whether such social structures exist. If they do, and if, like many features of the natural realism they cannot be perceived directly, the possibility of their detection will turn on the perception of their effects. In this way the reality of hypothesised entities can be assessed quite empirically, albeit indirectly:

> Once we accept the property of depending upon human agency as criterial for the social, and acknowledge the causal criterion for ascribing reality, it is easy enough to see that identifiable social structures do exist. Items such as (societal) rules, relations and positions clearly depend on human agency as well as condition our every day [...] activities. The

[79] The following discussion is based upon Lawson (1997). However, other relevant discussions can be

> human (intentional) activities of speaking, writing, driving on public roadways, cashing cheques, playing games, giving lectures, and so forth, would be impossible without such social material conditions as rules of grammar, the highway code, banking systems, rules of play, teacher-student relations, etc. All are structures which pre-exist and make a difference to (facilitate as well as constrain) related human activities (Lawson, 1997: 31).

Thus, natural and social realms are similar in that both are characterised by structures underlying the course of events. However, they are dissimilar in that social structures depend for their existence on human agency. "Thus, although a language system is like gravity in that it facilitates human action it is unlike gravity in depending in turn on human action" (Lawson, 1997: 32). Human agency and social structure presuppose each other. Neither can be reduced to, identified with, or explained completely in terms of the other, for each requires the other.

The significant point is that because social structure is human-agent dependent it is only ever manifest in human activity. Thus, given the open nature of human action – that each person could always have acted otherwise – it follows that social structure can only ever be present in an open system. In consequence, any economic laws must be interpreted as tendencies that are manifest as strict event regularities only very rarely, and the deductivist project in economics is misguided (Lawson, 1997). By accepting a scientific realist perspective and acknowledging a realm of structures and mechanisms which are irreducible to actual phenomena including human activities, but which govern, facilitate, produce and/or condition them, the determinism of positivism is avoided, and space for real choice is retained. For instance, while the structures of languages facilitate speech, they do not determine what is said.

Lawson is not suggesting that people never act in an economically rational way. The point is that, from a scientific realist perspective, notions such as economic rationality must be conceived in terms of potentials; as potentials that may or may not be expressed, and if expressed may or may not be actualised because of countervailing

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found in Lawson (1989a, 1989b, 1994, 1999).

tendencies. Thus, contrary to mainstream neo-classical economics, it is suggested that the subject matter of economics cannot be reduced to principles governing the behaviour of individuals. Instead, economics should acknowledge the centrality of human beings to all social life, and the reality of social structures that cannot be reduced to people.

Both the deductivist and scientific realist philosophies maintain the naturalistic project in the social sciences through a notion of causal hypotheses. However, their conception of such causal hypotheses differs in significant ways. While deductivism employs a deductive or inductive mode of inference to cover a phenomena under a generalisation, scientific realism employs a 'retroductive' or 'abductive' or 'as if' mode of inference to identify a factor responsible for, that helped produce, or at least facilitated the phenomena. That is, rather than looking for an empirical law, scientific realism moves from an observation to a theory of a deeper causal mechanism, structure or tendency. In this case, laws are neither empirical statements (statements about experience) nor statements about events or their regularities, but statements about structures and their characteristic modes of activity.

The scientific realist perspective also accepts that the choice of phenomena to be explained, and the set of causal factors pursued in its explanation reflect the investigator's knowledge, understanding, values and interests. Thus, while identifying causal intransitive mechanisms, knowledge is also fallible. This is particularly important as the scientific realist ontology accepts the existence of countervailing tendencies and unactualised potentials[80].

Lawson (1997) illustrates the difference between the deductivist and the scientific realist conceptions of economics through a comparison of the notion of rationality employed within each. The deductivist goal of the economic orthodoxy is achieved by imputing to any economic agent some unitary objective, a set of beliefs/knowledge, and an ordering of some kind over the perceived potential satisfiers of the imputed objective, thus producing a model explaining behaviour of the form 'if x then y' (see chapter 8).

[80] For a more detailed review of the scientific realism position, see s. 5.6.

Scientific realism replaces this image of the perpetually-calculating, optimising agent with one of individuals continually negotiating their daily affairs through acknowledgement of the existence of choice and intentionality that enable individuals to formulate plans in line with their desires and beliefs, and to act upon them. Lawson (1997) refers to this as the theory of situation rationality. Choices are conditioned by the situated options perceived, and individuals have themselves been moulded by the context of their birth and development. Individuals are faced with a range of positions with associated, and perhaps contradictory, interests, needs and motives, and a range of rules to draw upon and obligations to fulfil. Action is thus a "continuous stream". While individuals act rationally, it is a far cry from the ever calculating, ranking optimiser of standard economic theory.

The aim of economics as it emerges from the scientific realist perspective is to describe the structural conditions for some manifest social phenomena to be possible:

> Economics analysis as conceived here, then, will usually be a complicated and messy affair. Unlike the simplistic positivistic conception of science as elaborating event regularities, the process of uncovering and explaining significant causal structures and mechanisms, including geo-historically rooted and dynamic totalities, will usually be a painstaking, laborious, and time-consuming, transformative activity, one that gives rise to results that will always be partial and contingent. [...] The explanatory process will inevitably involve looking at certain features of some structure or mechanism or system to the neglect of others, understanding some structure etc., from a particular angle, leaving certain questions at any stage unanswered [...] and warranting of further attention (Lawson, 1997: 270 – 271).

10.9 Testing causal theories in economics.

It is not the intention of this chapter to side with any particular epistemological approach to economics, nor to provide a comprehensive review of economic

methodology. Instead, identifying the problems with the dominant deductivist approach, and acknowledging the existence of alternatives is meant to highlight the problems with testing the claims of economics and the fact that these issues are recognised within the economics profession itself.

Thus, just as we experienced problems testing the claims of economics in chapter 9, so economics generally suffers in its claim to present testable causal theories. That is, the problem with most conceptions of rationality within the social sciences, including that of neo-classical economics, is that they remain untestable as causal theories. Neither economists nor their critics can create a definition of "rationality" that avoids circularity. The approach employed attempts to work back from behaviours to beliefs/desires and, in doing so, requires further assumptions about the nature of the mind, as there are an infinite number of different combinations of beliefs and desires that can lead to an action. Indeed, it is the failure of this epistemological approach to illuminate the social realm that causes some economists to opt instead for the rival philosophies of hermeneuticism and realism.

10.10 Summary: Can moral norms be incorporated within individual benefit-functions?

Part III of this thesis has attempted to address the question of whether moral norms can be incorporated within individual benefit-functions. Having identified some of the literature concerned with this issue in chapter 8, it was suggested that neo-classical economics is not based on the notion of self-interest, but rather makes assumptions regarding the structure of preference: that they are teleological. Thus, it is argued that whether moral norms can be incorporated within individual benefit functions depends on the structure of morality. In particular, whether morality shares a teleological structure with economic preferences.

Chapter 9 attempted to determine empirically whether morality possesses such a teleological structure through the examination of participants' motivations in responding to a Contingent Valuation survey. It was suggested that moral norms and economic values are commensurable and thus do share a teleological structure. However, in testing the structure of beliefs, our analysis required that certain

assumptions be made regarding the nature of beliefs, something that chapter 10 identifies as a fundamental epistemological flaw arising from the application of causal laws to the explanation of social behaviour.

Thus, in summary, it is suggested that, before our result in favour of the neo-classical paradigm and the notion that moral values possess a teleological structure can be accepted there are fundamental epistemological issues that require resolving within economics. The debate remains open.

PART IV

CONCLUSION

11. Investigating the commensurability of environmental values: Implications for the epistemology of the social sciences.

11.1 The commensurability of environmental citizen and consumer values.

To briefly review the rationale for undertaking the above investigation, it was suggested in Part I that both the efficacy of incorporating moral values within economic valuations of the environment and the likely impact of the expansion of market forces on traditional communal norms are questions that can be answered through the determination of the commensurability of citizen and consumer values. That is, if citizen and consumer values are commensurable and moral values can be incorporated into individual benefit functions without agent's experiencing ambivalence, and doing so involves no loss of knowledge, then moral norms motivate actions through the same psychological mechanism as market incentives. In this case, moral norms can be incorporated within economic valuation of environmental resources, and market incentives have the potential to undermine traditional communal practices.

In Part I of this thesis two questions were outlined, the answer to which would contribute to determining the commensurability of citizen and consumer values. The first of these questions was whether environmental moral norms possessed objective validity. Part II considered this question, concluding that although the potential for objectivity was still maintained within the work of Lakatos and the scientific realist philosophy, recent trends tended to favour the relativism of knowledge. However, while attempts to empirically identify necessity in knowledge of the environment in corroboration of the objectivity thesis proved inconclusive, the investigation in chapter 4 did suggest the possibility of necessity in the development of environmental preferences. Furthermore, surveys of the literature revealed support for commonalities in tree symbolism (s. 7.3), Biophilia (s. 4.2.1), and universalities in the classification of biological kinds (s. 4.2.3).

In favour of the relativism of knowledge, chapter 4 also identified a literature supporting the local, culturally determined nature of environmental preferences. What's more, the

frameworks developed in an attempt to investigate the existence of necessity in knowledge of the environment might be considered novel (the adaptation of Piaget's genetic epistemology in chapter 4) or contentious (direct perception's rejection of mainstream anthropology in chapter 6).

The second question asked in Part I was whether citizen and consumer values can be combined, or can citizen values be incorporated within individual benefit functions? Part III considered this question, though once again our discussion proved inconclusive. It was argued that this question could be rephrased as whether morality can be thought of as possessing a teleological structure (chapter 9). However, although an empirical investigation into people's motivations in responding to a Contingent Valuation survey suggested that citizen and consumer values are commensurable (chapter 9), the validity of this result is called into question by rejection of the naturalistic project within the social sciences (chapter 10).

The thesis therefore fails to convincingly determine the commensurability of citizen and consumer values, as the empirical investigations undertaken are unable to settle all the philosophical questions posed. This is perhaps not so surprising considering the complexity of the issues concerned. As Foster tells us:

> "Value" is a word with all the complexity of life itself. [It] eludes our definitional grasp with a subtle duplicity characteristic of the really important concepts in human experience (Foster, 1997: 2 – 3).

As such, it is difficult to relate decisively back to the policy problems that motivated our investigation in Part I. It is hoped that the questions of pertinence to the resolution of these problems have been spelt out clearly, and the reasoning in following this line of questioning is justified. However, given the inability to conclude with regard the answers to the questions posed, policy recommendations await further research.

11.2 Lessons for the methodology of the social sciences.

Rather than concluding about the commensurability of citizen and consumer values, what emerges most forcefully from this thesis is the minefield presented by epistemological issues in the social sciences. Social scientists have defended competing and irreconcilable approaches to their own discipline by appeal to philosophical theories. Indeed, perhaps the one constant within the philosophy of social science has been the dispute between the naturalist and the anti-naturalist[81]. For instance, while economists have tended to favour a deductive, naturalist epistemology, researchers in the fields of anthropology and sociology have tended to favour the anti-naturalist, interpretive epistemological approach. Briefly stated, the naturalist maintains that the social sciences should approach the study of social phenomena in the same way that the natural sciences have approached the study of natural phenomena – that the social sciences should have as their goals prediction and nomological explanation. Anti-naturalists deny the possibility of a naturalistic social science due to basic differences in the subject matter of the social and natural sciences. Advocates of this view hold that there are no laws in the social sciences, and that instead we should seek to understand social phenomena from the point of view of the social agent[82].

Such disputes over whether the goal of social science should be predictive improvement or increasing intelligibility is fundamentally a disagreement about the nature, extent, and justification of claims to knowledge. Of course, we'd rather not have to choose between seeking improvement in prediction and making human action more intelligible. Yet insofar as what we seek in social science is knowledge, the choice is forced upon us (Rosenberg, 1995). That is what makes epistemology unavoidable for those who hold that the aim of the social sciences is to provide knowledge.

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[81] Other epistemological approaches to the social sciences include pluralism – the notion that naturalist and anti-naturalist positions are compatible or even complementary – and critical social science – the idea that deep unconscious prejudices we hold about class, race, and gender influence our research and that the social sciences should raise them to consciousness so that we can escape their influence and become 'liberated'.

Throughout part II various epistemic frameworks were presented at one stage or another. Chapter 3 reviewed the distinction within the philosophy of science between the positive notion of objective knowledge through causal laws and the relativist espousal of subjective, culturally constructed knowledge, as well as reviewing Lakatos's Methodology of Scientific Research Programmes. Chapter 4 investigated the potential role of Piaget's genetic epistemology in helping to explain landscape preference. Chapter 5 related the positivist and relativist perspectives to the social sciences in the shape of the conventional naturalist-non-naturalist dichotomy, as well as summarising the scientific realist defence of objective knowledge. Finally, chapter 6 briefly discussed the distinction between the Cartesian and Romantic frameworks before turning to Gibson's direct perception approach to knowledge.

This thesis is concerned with investigating the claims of economics. As it is the deductive epistemology that underlies much of economic thinking, we shall focus on this epistemological debate by commenting upon the appropriateness of this deductive approach for the social sciences.

Throughout the thesis, concerns have been documented over the possibility of a social science based upon constant behavioural conjunctions. In chapter 5, we described how the "deductive-nomological" or "covering law" theory of scientific explanation, deducing occurrences from a set of one or more laws and a description of initial conditions, cannot be applied to the behavioural sciences due to the folk psychology they employ (s. 5.3). In particular, is was suggested that this form of explanation fails as there are two problems measuring the initial conditions of behaviour. Firstly, mental states are thought to be holistic. That is, by itself an action never identifies a single belief or desire, as the identification of one belief or desire requires that all other beliefs and desires be known.

Secondly, while this problem might be overcome through the measurement of beliefs and desires, the only instrument available to undertake such measurement is social theory

[82] For a further discussion of the details of the naturalist and anti-naturalist positions within the social sciences see chapters 3, 5 and 10.

itself. That is, the approach employed attempts to work back from behaviours to beliefs/desires and, in doing so, requires further assumptions about the nature of the mind, as there are an infinite number of different combinations of beliefs and desires that can lead to an action. The only way to measure beliefs and desires is to make assumptions about the mind, such as the rational theory of choice.

Two of the empirical investigations undertaken within this thesis adopted the positivist "covering-law" epistemological position, and the result of each demonstrated the fundamental epistemological difficulties in applying such "laws" to social action. That is, the inability of the social sciences to describe constant behavioural conjunctures. Firstly, chapter 4 attempted to analyse the source and form of environmental landscape preferences. The hypothesis presented for investigation was of a format represented by the "covering-law" approach:

Initial conditions: Picture 1 scores higher on characteristic X.

Hypothesis: Developmental necessity favours the preference for X.
Therefore;
Observation: Picture 1 is chosen.

A caveat to concluding in favour of this hypothesis was that learned preferences may favour the preference for X. (s. 4.8.2). This reflects the first problems outlined above. To identify one belief requires that all beliefs and desires be known: to know preferences derived from necessity in development is to know preferences learned. As noted, this problem can be overcome through the measurement of beliefs. However, there is no way of measuring whether it is the case that learned preferences favour the preference for X except through the employment of a "covering-law" of sort being tested, as the only approach available is to work back from behaviour to beliefs and desires, something which requires assumptions about the mind such as are reflected in theory. This is the second problem outlined above.

Thus, to determine whether learned preferences favour X would require employing the observation that people prefer picture 1, or more of characteristic X, and working back from such behaviour to preferences. However, the only link between behaviour and belief are "covering-laws" relating the two. For example, if the law that 'Developmental necessity favours the preference for X' is employed, then we would conclude that learned preferences do not favour X. Thus, a circularity opens up when "covering-laws" are used to relate behaviour and beliefs or desires.

Similarly, chapter 9 attempts to investigate the structure of morality. In doing so, the hypothesis presented for empirical analysis can be written:

Initial conditions:	1. Resources are valued using moral norms.
	2. Economic preferences can be valued monetarily.
Hypothesis:	Moral norms and economic preferences are both teleological.
Therefore;	
Observation:	Resources can be valued monetarily.

A caveat to concluding in favour of this hypothesis was that the investigation undertaken may not have activated the norms used to value the resources (s. 9.6.3). That is, are the initial conditions described above accurate? Again the first problem of holistic mental states is raised: in order to know a person's belief regarding the teleology of morality one must know, for instance, their desire to apply norms in the valuation process. And again this problem cannot be overcome through measurement of the initial conditions, as the only way to do so is to employ laws to work from behaviour to belief: as resources can be valued monetarily, norms and economic preferences are both teleological, and economic preference can be valued monetarily, then it can be concluded that norms were activated.

Thus, the empirical investigations undertaken demonstrate the problems deploying laws to describe behaviour: the holistic nature of mental states, and the inability to measure

beliefs and desires without making assumptions about the mind in the form of theories. The methodological insights emerging from this thesis contribute generally to the debate concerning the epistemic status of the social sciences. Do the social sciences require any special treatment or are the epistemological insights of the natural sciences sufficient in investigating society? Is a naturalist social science possible? The above observations would suggest that such a naturalist project is not possible, and that the social sciences should adopt an alternative epistemological framework, such as the hermeneutic or the scientific realist perspectives outlined in chapter 5.

11.3 Hermeneutics and the commensurability of values.

The importance in the generation of knowledge of different epistemological positions when applied to the social sciences can be illustrated through consideration of intuitive responses to the question raised in chapter 9: does morality possesses a teleological structure? Before the concerns with regards the epistemological position adopted were highlighted, the conclusion of the empirical work undertaken in chapter 9 was that citizen and consumer values, or moral norms and economic preferences, are commensurable. That is, moral norms can be incorporated within individual benefit functions and valued monetarily. This is the conclusion produced through the application of a naturalist perspective to the development of knowledge within the social sciences. It is also a conclusion not without its critics.

Interestingly, an analysis of the criticism levied against the notion of the commensurability of moral norms and economic preferences can be thought of as the application of an anti-naturalist, interpretive epistemology. That is, such an approach accords much more with the notion of understanding social phenomena from the point of view of social agents themselves. Within this perspective can be included many of the intuitive objections to the economic valuation of natural resources reviewed within the course of this thesis. For instance, Keat lists a number of the analogies presented by Mark Sagoff in criticism of the neo-classical economic position:

> To arrive at environmental decisions [by determining people's WTP] would be the equivalent of trying to decide whether a person on trial is guilty by discovering, before any evidence has been heard, what the preferences of the jury were in this regard, and then calculating the net benefits of the two possible verdicts; or deciding whether creationist science, instead of Darwinian theory, should be taught in certain schools by finding out whether there were enough pupils or parents whose preferences for this were sufficiently strong, as indicated by their WTP to meet the costs of doing so; or determining the justifiability of the Vietnam war by finding out whether this policy produced more preference satisfaction than its alternatives, with people's moral judgements about the war being included alongside other kinds of 'preference' (Keat, 1997: 33 – 34).

In other words, the conclusion presented in chapter 9 was that ethical judgements are made in accordance with their makers' own, subjectively determined well-being. It is not controversial to suggest that people will justifiably have problems with this. That is, people will feel that interests can be made distinct from those exhibited in a particular institutional context, such as the market. Another way of putting this is that people hold strong convictions about the kinds of things that can be bought and sold. Or, there are commitments that are central to the well-being of agents that are partially constituted by a refusal to put a price on goods. The notion of non-commensurability holds strong intuitive claims. For instance, O'Neill (1998: 171) suggests that "The person who could put a price on friendship, simply could not have friends."

Anderson (1990) characterises these strong intuitive claims by contrasting impersonal monetary valuation and market exchange with the gift exchange and reciprocity of personal relationships:

> Prostitution is a classic example of the debasement of a gift value through its commodification. But what is base about buying and selling sexual "services" on the market? One cannot understand what makes this practice

> base without understanding the specifically human good achieved when sexual acts are exchanged as gifts. This good is founded on mutual recognition of the partners as sexually attracted to each other and as affirming an intimate relationship in their mutual offering of themselves to each other. This is a shared good: one and the same good is realised for both partners in their action, and part of its goodness lies in the mutual understanding that it is shared. [...] When sexual "services" are sold on the market, the kind of reciprocity required to realise human sexuality as a shared good is broken. [...] The problems entailed by explicitly exchanging sexual acts for money arise in part because sexual acts [...] are valuable as expressions of underlying non-commercial motives and understandings (Anderson, 1990: 187 - 188).

Moreover, one way of making intelligible the intuitive reaction against the suggestion that moral norms and economic preferences are commensurable would be to suggest that morality does not possess a teleological structure. That is, nobody would find it unreasonable to suggest the morality possess a non-teleological structure and is non-commensurable with economic preference - a conclusion that contradicts that emerging from the positivist analysis of chapter 9.

This analysis of people's understanding of the question presented in chapter 9 corresponds with the epistemological approach espoused by hermeneutics. Rather than developing and empirically examining the predictions of a "covering-law", as was attempted in chapter 9, the approach adopted here is concerned with understanding, or making intelligible the meanings and interpretations attached by people to the world – in this case the problem of incorporating moral norms into economic valuation. Furthermore, the conclusions of the positivist and hermeneutic approaches to the problem of the structure of morality, at least in this instance, reveal opposing conclusions. Put another way, the different epistemologies produced different knowledge.

Another way of expressing the contradictory knowledge emerging from the two approaches adopted is to suggest either that the conclusion of the investigation undertaken in chapter 9 is wrong, or that people's intuition is wrong. However, to pick between these two positions one first has to choose between competing epistemologies.

11.4 Implications for investigating the claims of economics.

This thesis set out with the intention of investigating a number of the claims made by economics. Specifically, in order to determine the commensurability of moral norms and economic preferences, economists' claims that moral values are subjective, and that norms can be incorporated into individual benefit functions were put to the test. The epistemological implications of the results obtained, however, hold important lessons for any such attempt. As was described in sections 10.4 and 10.5, economists have traditionally maintained the deductive epistemological approach reflected in the covering-law model of explanation. As Caldwell argues:

> I submit that one operative assumption of our time is the almost unquestioned authority of science. Its particular manifestation within [economics] had its origins many years ago, when the notion first blossomed that economics could be, and should try to be, a scientific discipline. In the twentieth century the dream seemed realised with the emergence of positivism. [However] positivism in its many variations has been in decline within the philosophy of science for the last twenty years or so, and that knowledge is now filtering down to the special sciences, especially as the works of the 'growth of knowledge' philosophers (Thomas Kuhn, Imre Lakatos, J. A. Agassi, and others) have gained prominence. Few economists keep up with developments in the philosophy of science, and as such it is understandable that many still labor under the *illusion* that economics is, or can be, a positivist discipline (1994a: 4. Emphasis added).

Thus, if economics is to convincingly come to terms with its critics, it must address some of its philosophical presuppositions – in this case the teleological structure of morality. However, to do so requires, in turn, that further philosophical questions be asked, this time in the area of epistemology. If questions concerning the moral philosophical framework upon which economics is based are to be answered satisfactorily, economics has to first embrace concerns over its epistemological status.

As the brief review of the work of Mill, Robbins, Hutchinson, Machlup and Friedman (s. 10.5) suggested, philosophy and methodology were issues that once sat at the heart of economic debate. However, Lawson (1997) describes a recent reluctance on the part of economists to reflect on epistemological questions:

> Perhaps the most immediate form [of this reluctance] is the perpetual repetition of such quips as 'don't think about it, just do it'; or 'methodologists are crazy'. An effective restraint on methodology, moreover, is the clear reluctance of mainstream economic journals to publish much of it. Also significant is the apparent refusal of many central research funding authorities to promote it. In the UK, for example, the training currently provided and recommended for economics students tends to be more or less devoid of any explicit methodological content. A quick run through a recent Economic and Social Research Council *Guidelines for Post Graduate Training* reveals that economics is one of only two out of the twenty subject guidelines provided (the other being 'town planning') that do not include an explicit section detailing the need for some form of formal training in the 'philosophy of the social sciences' (Lawson, 1997: 11- 12).

As an example of this notion that methodological reflection is irrelevant to economics, Lawson quotes Frank Hahn's response to the claim that he himself practices methodology:

> Methodology like original sin won't go away, and Backhouse is right in saying that I myself have sinned. Perhaps it would have been better if I had not. [...] What I really wanted to advise the young to do was avoid spending much time and thought on it. As for them learning philosophy, whatever next? (Hahn, 1992; quoted in Lawson, 1997: 12).

Further, Lawson quotes a similar observation of Caldwell's

> At the 1989 History of Economics Society meeting [...] there was a session entitled, 'Should Methodology Matter to the Economist or to the Historian of Economics?' Some of the participants answered in the negative. As an observer I was disappointed in the session, not because the study of methodology was attacked, but because the attack was such an anaemic one. The major worry seemed to be that many economists think that methodological study is a waste of time. One panellist even suggested that it would be right to keep doing methodological investigations as long as we called them by another name so as not to offend our fellow economists (Caldwell, 1990; quoted in Lawson, 1997: 13).

Perhaps this position is not all that unreasonable. The differences between the deductive and interpretive views of the social sciences rest on fundamental issues of philosophy, claims about epistemology, metaphysics and ethics. Since these issues were first raised by Plato almost 2400 years ago, philosophers have not been able to settle them (Rosenberg, 1995). Thus, why should the rest of us bother about these issue if they cannot be settled? As Caldwell states:

> The study of methodology is an agonising task; writing a book on the subject requires the skills of an individual who is at once presumptuous and masochistic. By the very nature of methodological work, solutions to important problems seldom seem to exist (1994a: 1).

And,

> An apt, if cynical, characterisation of methodological study is that it is the systematic categorisation of unanswerable questions (ibid.: 6).

However, while these issues may be insoluble, they are certainly not irrelevant. Even the claim that philosophical reflection is irrelevant to advancing knowledge is itself a philosophical claim (Rosenberg, 1995). Social scientists indifferent to philosophy can embrace this view. But unless they argue for it, their view must appear to others to be sheer prejudice. An argument for the irrelevance of philosophy is itself philosophy. As argued in the last section, what makes epistemology unavoidable for those who hold that the aim of the social sciences is to provide knowledge: "Methodology systematises man's curiosity; each methodological view directs the scientist to seek knowledge differently" (Caldwell, 1994a: 2).

Hausman (1994) identifies a resurgence of interest in the philosophy and methodology of economics during the last generation. Martin and McIntyre (1994) identify a similar resurgence of interest in philosophy in the social sciences in general since the early 1980s. Hausman goes on to identify a number of reasons for this increased interest:

(a) The recent poor performance of economies, and the widespread doubt that anyone knows how to restore prosperity or to alleviate the continuing misery characteristic of most of the so-called "developing" countries. Not only do lay people doubt economists, but economists doubt themselves.
(b) The provocative claim by economists that economics is the model that all social scientists should follow makes methodological questions concerning economics more directly significant to practitioners of the social sciences.
(c) The calling into question of the fundamental claims of mainstream economics following stringent testing by cognitive psychologists.
(d) The increased scepticism within the philosophy of science regarding how science ought to be done (see chapters 3 and 5).

Thus, Hausman argues:

> In such an atmosphere it is not surprising that economists should turn to methodological reflection in the hope of finding some flaw in previous economic study or [...] some new methodological direction that will better guide their work in future (Hausman, 1994: 2).

Perhaps the relationship between the problems experienced within economics and the renewed interested in philosophy is more than coincidence. As Thomas Kuhn noted, it has only been at periods of crisis in the development of physics or chemistry that natural scientists have turned to philosophy and taken seriously questions about the foundations of their discipline.

Whatever the motivation behind this increased interested in methodology in economics, it is a trend that is supported by this thesis. That is, the conclusion of this thesis is a call for further attention to the philosophical issues underlying economic arguments, in particular epistemology. It is beyond this thesis to provide a comprehensive overview of the philosophical issues relevant to economics, let alone ruling on the epistemological framework most appropriate for economics. However, it is hoped that it at least provides an introduction to some of the issues of importance, and thus a starting point for future study.

11.5 Is the commensurability of values worth investigating?

One response to the questions posed in this thesis was that they seemed too obvious. That is, it is generally acknowledged that no value system possesses any greater validity than another – that values are subjective – and that the capitalist ideology has the power to undermine other value systems – that traditional norms will be eroded in the face of market forces. In the light of the investigation undertaken, that this claim was made can

be taken as indicative of the conclusion presented above – that the social sciences need to pay greater attention to the philosophical issues underlying their discipline.

One level of response to this claim would be to point to various arguments identified as contributing to the answers to these questions and the different, often contradictory positions adopted with regard these questions. For instance, while relativism has been influential within the social sciences, especially within the anthropology literature, the same literature contains claims regarding the 'truth' to be learned from indigenous cultures. Moreover, the power of the capitalist ideology to erode traditional norms is accepted by those arguing in favour of the non-commensurability of moral norms and economic preferences. That these two positions require contradictory moral philosophical presuppositions seems to have escaped many involved in such debates.

Following on from these observations, a second more fundamental response would be to suggest that the answers to such questions only seem obvious from the perspective of a social science steeped in presupposition. That is, once we examine these presuppositions, as attempted within this thesis, they become much less obvious. Firstly, as argued above, we see that the presuppositions employed are far from consistent and often contradict. Secondly, we start to appreciate the importance of the epistemological position adopted in arriving at, and supporting these presuppositions (s. 11.3).

Thus, by way of reiteration, the concerns raised against this thesis serve to reinforce its conclusion: if social scientists are to resolve their different perspectives on the fundamental questions that divide them, they must address the philosophical basis of their knowledge.

Appendix 1: Landscape pictures.

Picture 1

Picture 2

Picture 3

Picture 4

Picture 5

Picture 6

Picture 7

Picture 8

Picture 9

Picture 10

Picture 11

Appendix 2: landscape combinations presented to participants.

(i) 10, 9.
(ii) 7, 2.
(iii) 7, 9.
(iv) 8, 1.
(v) 1, 4.
(vi) 6, 3.
(vii) 11, 3.
(viii) 8, 4.
(ix) 11, 6.
(x) 5, 1.

Appendix 3: Landscape scale sensitivity analysis.

Partial correlation coefficients for each of three different landscape characteristic ranking scales used:

Scale	Preference	LANDSCAPE CHARACTERISTIC						
		Coherence	Complexity	Mystery	Legibility	Water	Lushness	Forest
5 to -5	Picture 1	0.9851**	0.9744*	-0.9689*	-0.8446	0.9558*	-0.9655*	0.9177*
20 to -20	Picture 2	0.9851*	0.9744*	-0.9689*	-0.8446	0.9558*	-0.9655*	0.9177*
50 to -50	Picture 3	0.9852*	0.9762*	-0.9710*	-0.6973	0.9573*	-0.9658*	0.9050*

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